## Compliance Forms Summary Appendix A

### Appendix A Compliance Forms

### **Overview**

This appendix includes blank copies of the Residential Compliance Forms. Compliance documentation is completed at the *Building Permit Phase*, the *Construction Phase*, and the *Field Verification and Diagnostic Testing Phase*. The forms and documents submitted at each of these phases are described below.

### **Building Permit Phase Documentation**

The Standards Section 10-103(a) requires that a certificate of compliance be included on the plans when the performance approach is used. If the performance approach is utilized for compliance, the CF-1R forms are produced by the compliance software. Thermal Mass and Solar Heat Gain Coefficient calculations are performed internally by the software.

### Certificate of Compliance - Residential New Construction (CF-1R)

The CF-1R summarizes the minimum energy performance specifications needed for <a href="mailto:needed">new</a> construction compliance, including HVAC capacity and the results of the heating and cooling load calculations need to be to be attached. The Standards require that a certificate of compliance be included on the plans. CEC approved Performance ACM software automatically generates CF-1R forms, which vary in some respects from the prescriptive CF-1R forms.

### Certificate of Compliance - Residential Additions (CF-1R-ADD)

The CF-1R-ADD summarizes the minimum energy performance specifications needed to demonstrate compliance for an <u>addition</u> to a dwelling, including HVAC capacity and the results of the heating and cooling load calculations which are required to be attached. The Standards require that a certificate of compliance be included on the plans. CEC approved performance ACM software automatically generates CF-1R forms, which vary in some respects from the prescriptive CF-1R forms.

### Certificate of Compliance - Residential Alterations (CF-1R-ALT)

The CF-1R-ALT summarizes the minimum energy performance specifications needed for an <u>alteration</u> to an existing dwelling, including HVAC capacity and the results of the heating and cooling load calculations need to be attached. The Standards require that a certificate of compliance be included on the plans. CEC approved performance ACM software automatically generates CF-1R forms, which vary in some respects from the prescriptive CF-1R forms.

### Mandatory Measures List (MF-1R)

This document is applicable for both prescriptive and performance compliance. This reference list must be part of the building plans to help builders and inspectors reference applicable mandatory measures in the Standards.

### Solar Water Heating Calculation (CF-SR)

This form is used to calculate the percent of domestic water heating that is supplied by solar water heating. The form is used to calculate the percent of solar contributed by tested solar system. All system or collector data must be based on the OG-300 test methods of the Solar Rating and Certification Corporation. This form is only available in electronic (Excel) format. Contact the Energy Commission Hotline for more information on how to access this calculation sheet.

### Thermal Mass Worksheet (WS-1R)

This worksheet is completed by the documentation author when complying with the prescriptive requirements of Package C.

### Area Weighted Average Calculation Worksheet (WS-2R)

This worksheet is used to calculate weight-averaged U-factors for prescriptive envelope compliance.

### Appendix A Compliance Forms

### Solar Heat Gain Coefficient (SHGC) Worksheet (WS-3R)

This worksheet is completed by the documentation author when complying with the prescriptive requirements.

### **Construction Phase Documentation**

### Installation Certificate (CF-6R)

The CF-6R is now broken into categories; ENV, LTG and MECH, and most compliance measures have a separate CF-6R form that is specific to a particular installation. A set of CF-6R documents applicable to the construction project is required to be assembled and posted at the building site. Different installing contractors are responsible for installing the water heating equipment, the windows (fenestration), the lighting system, the air distribution ducts and HVAC equipment, the measures that affect building envelope tightness, and the insulation.

**Installation Certificate (CF-6R-HERS)** Some installations are required to be Field verified by a third party HERS rater. These types of installations require that installers submit forms that certify certain performance or quality specifications have been met. These performance or quality specifications will be verified by a HERS rater.

### Field Verification and/or Diagnostic Testing Documentation

### Certificate of Field Verification and Diagnostic Testing (CF-4R)

The CF-4R is now broken into categories; ENV, and MECH, and most compliance measures have a separate CF-4R form that is specific to a particular installation. A set of CF-4R documents applicable to the construction project is required to be assembled and posted at the building site. These document are completed by the HERS rater when field verification and/or diagnostic testing is required. These documents include information about the measurements and tests that were performed. The HERS rater verifies that the requirements for compliance credit have been met. Copies of the CF-4R are required to be provided to the Builder, HERS Provider and Enforcement Agency for every home that utilizes HER verification for compliance.

### Appendix A Compliance Forms

2008 Residential Compliance Forms	# Pages
Certificate of Compliance	
CF-1R – Certificate of Compliance: Residential New Construction	5 Pages
CF-1R – ADD Certificate of Compliance: Residential Additions	5 Pages
CF-1R – ALT Certificate of Compliance: Residential Alterations	5 Pages
MF-1R – Mandatory Measures Summary: Residential	3 Pages
Worksheets	
WS-1R – Thermal Mass Worksheet	1 Page
WS-2R – Area Weighted Average Calculation Worksheet	1 Page
WS-3R – Solar Heat Gain Coefficient (SHGC) Worksheet	2 Pages
Installation Certificate	
CF-6R-ENV-01 – Envelope – Insulation; Roofing; Fenestration	3 Pages
CF-6R-ENV-20-HERS – Building Envelope Sealing	3 Pages
CF-6R-ENV-21-HERS – Quality Insulation Installation (QII) - Framing Stage Checklist	2 Pages
CF-6R-ENV-22-HERS – Quality Insulation Installation (QII) - Insulation Stage Checklist	3 Pages
CF-6R-LTG-01 – Residential Lighting	3 Pages
CF-6R-MECH-01 – Domestic Hot Water (DHW)	2 Pages
CF-6R-MECH-02 – Solar Domestic Hot Water Systems (SDHW)	1 Page
CF-6R-MECH-03 – Pool And Spa Heating Systems	2 Pages
CF-6R-MECH-04 – Space Conditioning Systems, Ducts and Fans	2 Pages
CF-6R-MECH-05 – Indoor Air Quality and Mechanical Ventilation	5 Pages
CF-6R-MECH-06 – Evaporatively Cooled Condensing Units	2 Pages
CF-6R-MECH-07 – Evaporative Coolers	2 Pages
CF-6R-MECH-08 – Ice Storage Air Conditioning (ISAC) Units	2 Pages
CF-6R-MECH-20-HERS – Duct Leakage Test – Completely New or Replacement Duct System	2 Pages
CF-6R-MECH-21-HERS – Duct Leakage Test – Existing Duct System	2 Pages
CF-6R-MECH-22-HERS – HSPP/PSPP Installation; Cooling Coil Airflow & Fan Watt Draw Test	2 Pages
CF-6R-MECH-23-HERS – Verification of High EER Equipment	1 Page
CF-6R-MECH-24-HERS – Charge Indicator Display (CID)	1 Page
CF-6R-MECH-25-HERS – Refrigerant Charge Verification - Standard Measurement Procedure	5 Pages
CF-6R-MECH-26-HERS – Refrigerant Charge Verification - Alternate Measurement Procedure	2 Pages
CF-6R-MECH-27-HERS – Maximum Rated Total Cooling Capacity	2 Pages
CF-6R-MECH-28-HERS – Low Leakage Air Handler Verification	1 Page
CF-6R-MECH-29-HERS – Supply Duct Compliance Credits - Location; Surface Area; R-value	2 Pages
Certificate of Field Verification and Diagnostic Testing	agoo
CF-4R-ENV-20 – Building Envelope Sealing	1 Page
CF-4R-ENV-21 – Quality Insulation Installation (QII) - Framing Stage Checklist	2 Pages
CF-4R-ENV-22 — Quality Insulation Installation (QII) - Insulation Stage Checklist	3 Pages
CF-4R-MECH-20 – Duct Leakage Test – Completely New or Replacement Duct System	2 Pages
CF-4R-MECH-21 – Duct Leakage Test – Existing Duct System	2 Pages
CF-4R-MECH-22 – HSPP/PSPP Installation; Cooling Coil Airflow & Fan Watt Draw Test	2 Pages
CF-4R-MECH-23 – Verification of High EER Equipment	1 Page
CF-4R-MECH-24 – Charge Indicator Display (CID)	1 Page
CF-4R-MECH-25 – Refrigerant Charge Verification - Standard Measurement Procedure	5 Pages
CF-4R-MECH-26 – Not Used	N/A
CF-4R-MECH-27 – Maximum Rated Total Cooling Capacity	2 Pages
CF-4R-MECH-28 – Low Leakage Air Handler Verification	1 Page
CF-4R-MECH-29 – Supply Duct Compliance Credits - Location; Surface Area; R-value	2 Pages

## RESIDENTIAL CERTIFICATE OF COMPLIANCE

Project Name:		! Addition	<u> </u>	ici i	1100010 1	,						(Pag	
								Climate	Zone #	‡		# o	f Stories
General Information													
Site Address:		Enfo	rcemen	t Ag	ency:			Date	<b>:</b>				
Building Type ☐ Single	Family  Multi	Family	Cond	lition	ed Floor	Area <sup>1</sup> (C	FA):	1					
Circle the Front Orientati								struction [					1,000 ft <sup>2</sup>
DegreesComponent Package: (Cl	neck one) C	D	1. Ad E (					one 1 and					e 151-D
for alternative optional re			. L (		Ancina	iive) iii e	IIIIate Z	one rand	10 Omy	. See R	ounous	10 1 401	
Opaque Surface De	tails For the fur	red portion	ned of M	lass '	Walls se	e Furring	g Strips	Construct	ion Ta	ble belo	w.		
A B	Proposed See Not	te	D	G4	E	F		G Val	1	H 1447	I I		J
	Framing		kness,	Sta	andard			<u>var</u> Framed		m JA4 7	JA	1 I	Proposed
Tag/ Assembly Na ID <sup>1</sup> or Type <sup>1</sup>		Í Spa	ocing, Other <sup>3</sup>	f	U- actor <sup>4</sup>	JA4 Ta Numb	ıble	Cavity R-value <sup>6</sup>		ation	Assem Cell Va	bly	Assembly U-factor <sup>9</sup>
Note: For furred assemblies Furring Construction table		ıtinuous Insu	ation R-v	alue,	see Page	JA4-3 and	Equation	1 4-1. For c	alculatii	ıg furred	walls use	the Ma	ss and
<ol> <li>Enter the Table number</li> <li>Enter the R-value that</li> <li>Enter the Continuous</li> <li>Enter the row and col</li> <li>The <b>Proposed</b> Assembly</li> </ol>	is being installed Insulation R-value umn of the U-facto	in the wall for the pro or value bas	cavity or posed as ed on C	r betv sseml	ween the bly; other n F Table	rwise, eni e Number	er "0". and ent	er the Asse	embly U	-		ın J.	
Furring Strips Constru	ction Table for N	Mass Walls	Only										
A B	C	D E	F		G	Н	I	J	K	L			M
Proposed Properties Walls Fro	of Masonry and Com Reference	Concrete				erior or 1 g Space i		Insulation	1				
Joint Appendix T		4.3.7				ppendix							
		JA4 -Mass Cell Value <sup>4</sup> Mass U-Factor <sup>5</sup>	or r of	Insulation Layer	Frame Thickness	pe Metal	avity	s Cell					
Mass Name o Thickness <sup>1</sup> Type <sup>2</sup>	r JA4 Table	JA4 -Ma Value <sup>4</sup> Mass U-	Interior or	Insulat	Frame 1	Frame Ty Wood or	Furring C R-value³	JA4 -Mass Value <sup>4</sup>	Effective R-value <sup>5</sup>	Fina Assen U-fact	nbly	Co	mment
Mass Name o	r JA4 Table	JA4 -N Value Mass U	Interior	Insulat	Frame	Frame Type Wood or Metal	Furring Cavity R-value <sup>3</sup>	JA4 -Mass Cell Value <sup>4</sup>	Effective R-value <sup>5</sup>	Assen	nbly	Co	mment
Mass Name o	r JA4 Table	JA4 -N Value Mass U	Interior	Insulat	Frame	Frame Ty Wood or	Furring C R-value <sup>3</sup>	JA4 -Mass Value <sup>4</sup>	Effective R-value <sup>5</sup>	Assen	nbly	Co.	mment
Mass Name o	Annumber 3 JA4 Table Number 3	nce Joint Ap (Ceiling, Wo r 2x4, 2x6, ubles the pro value. 14 Table Nu r Equation 4	pendix J ulls, Floo or etc posed a mber. -1 or Eq	IA. ors, S see J ssem	Slabs, Cr. JA4 for o bly.	awl Space ther poss	e, Doors ible fran ence Joi	and etc ne type ass	Indicate	Assen U-fact	nbly or <sup>6,7</sup>	and Si	ze: For

CF-1R

**Prescriptive Certificate of Compliance: Residential** 

Prescriptive Certificate of Compliance: Residential		CF-1R		
Newly Constructed Buildings and Additions Greater Than 1,000 ft <sup>2</sup>		(Page 2 of 5)		
Project Name:	Climate Zone #	# of Stories		

FENESTRATION: PROPOSED A	AREAS				
Fenestration Type and Frame (Window, Glass Door or Skylight)	Orientation (North, East, South, West)	Proposed Area <sup>1</sup> (ft <sup>2</sup> )	Maximum Allowed U-factor <sup>2, 3</sup>	Maximum Allowed SHGC <sup>2, 3, 4</sup>	NFRC or Default Values <sup>5</sup>
	Total				

- 1. Fenestration area is the area of total glazed product (i.e. glass plus frame). Exception: When a door is less than 50% glass, the fenestration area may be the glass area plus a 2" "frame" around the glass.
- 2. Enter value from Component Package Requirements from either Table 151-B, 151-C, or 151-D.
- 3. Actual fenestration efficiencies installed shall be indicated on the installation form, CF-6R-ENV. The efficiencies should be equivalent to or less than that listed on the CF-1R Form Page 1. Otherwise, revise the CF-1R and resubmit for plan check review.
- 4. Submit a completed WS-3R Form if a reduced SHGC is calculated with exterior shading or overhangs.
- 5. If applicable at this stage enter "NFRC" Certified windows or are CEC "Default" values found in Table 116-A or B.

FENESTRATION PRO	FENESTRATION PROPOSED AREA CALCULATION									
	CFA ft <sup>2</sup>	Allowed % of CFA	Allowed Area (CFA x Allowed %)	<b>Total Proposed Area</b> (From Table Above)						
Total Fenestration Area <sup>1</sup>										
West Fenestration Area <sup>2</sup> (Required only in Climate Zones 2, 4 & 7 -15)		.05								
		Total Area <sup>3</sup>	2							

- 1. For Component Package C, see Table 151-B for Climate Zone Maximum Total Area Allowance. Enter 20% for all other Component Packages.
- 2. The Proposed West Fenestration Area includes west-sloping skylights and any skylights with a pitch less than 1:12.
- 3. To meet energy compliance the Total Proposed Area must be less than or equal to the Allowed Area.

Registration Number:	Registration Date/Time:	HERS Provider:	August 2009

Newly Constructed Buildings a	_	esident		<b>.</b>				CF-1R
	ınd Additioi	ıs Great	ter Than	1,000 ft <sup>2</sup>				ige 3 of 5)
Project Name:					Cl	imate Zone #	#	of Stories
					•			
ROOFING PRODUCTS (COO	DL ROOFS	) §151(f)	12					
Check applicable box below if the newly boxes are checked below, the Aged Sola not fill table below.								
☐ Cool Roofs Not Required in Climate ☐ Cool Roofs Not Required in Climate less than 5lb/ft².				-		•	) and product u	nit weight
Other Exceptions  ☐ Roofing area covered by building integer.								
☐ Roof constructions that have thermal note: If no CRRC-1 label is available, the								
the applicable box below if Exempt from	-					Approach to show	compnance, ou	nei wise, chec
CRRC Product ID Number <sup>1</sup>	Roof : ≤ 2:12		Product < 5lb/ft <sup>2</sup>	Weight $\geq 5 \text{lb/ft}^2$	Product Type <sup>2</sup>	Aged Solar Reflectance <sup>3,4</sup>	Thermal Emittance	SRI <sup>5</sup>
Care From D Fullion					- )   -			
						$\square^4$		
						$\square^4$		
	(0) $2+0$ $7(a$							
5. Calculate the SRI value by using the St and attach acopy of the SRI- Worksheet t To apply <b>Liquid Field Applied Coating</b>	calculated value of the CF-1R.	tue using at http://d	the equation www.energy	above.  v.ca.gov/tite  s the entire	e roof surface	er the resulting values and meet the dry n	Solar Reflectar ue in the SRI Co	olumn above
4. Check box if the Aged Reflectance is a 5. Calculate the SRI value by using the St. and attach acopy of the SRI- Worksheet to To apply Liquid Field Applied Coating recommended by the coatings manufacture.	calculated val RI- Worksheet to the CF-1R. s, the coating arer and meet n	due using at http://w must be apninimum	the equation www.energy	above.  o.ca.gov/tit.  s the entire e requirement	e roof surface	er the resulting values and meet the dry n	Solar Reflectar ue in the SRI Co	olumn above
4. Check box if the Aged Reflectance is a 5. Calculate the SRI value by using the St. and attach acopy of the SRI- Worksheet to To apply Liquid Field Applied Coating recommended by the coatings manufactural Aluminum-Pigmented Asphalt Roof	calculated value of the CF-1R. s, the coating arer and meet not coating	due using at http://w must be apninimum	the equation www.energy pplied acros performance	above.  o.ca.gov/tit.  s the entire e requirement	e roof surface	er the resulting value and meet the dry n §118(i)4. Select th	Solar Reflectar ue in the SRI Co	olumn above
same directory and use the equation of the Acheck box if the Aged Reflectance is a 5. Calculate the SRI value by using the St. and attach acopy of the SRI- Worksheet to apply Liquid Field Applied Coating recommended by the coatings manufactural Aluminum-Pigmented Asphalt Roof  HVAC SYSTEMS - HEATING  Heating Equipment Type and Capacity 1, 2, 3	calculated value of the CF-1R. s, the coating arer and meet not coating	at http://demust be apninimum p	the equation www.energy pplied acros performance	s the entire e requirement oof Coatin	e roof surface	er the resulting value and meet the dry n §118(i)4. Select th	Solar Reflectar  ue in the SRI Co  nil thickness or e applicable coa  Config (Centre Space, P	olumn above
4. Check box if the Aged Reflectance is a 5. Calculate the SRI value by using the St and attach acopy of the SRI- Worksheet to apply Liquid Field Applied Coating recommended by the coatings manufactural Aluminum-Pigmented Asphalt Roof HVAC SYSTEMS - HEATING Heating Equipment	calculated va. RI- Worksheet to the CF-1R. s, the coating arer and meet r Coating  Minimum Efficiency	at http://demust be apninimum p	the equation www.energy  pplied acros performance ent-Based R  Distributio Type and	s the entire e requirement oof Coatin	e roof surface ents listed in g	e and meet the dry n §118(i)4. Select th  Other  Thermostat	Solar Reflectar  ue in the SRI Co  nil thickness or e applicable coa  Config (Centre Space, P	coverage ating:  guration al, Split, lackage or

Newly Constructed Bu		mpliance: Reside					CF-1F
Duciost Norman	ildings	and Additions Gre	eater Than 1	$000 ft^2$			(Page 4 of 5)
Project Name:					Climate	e Zone #	# of Stories
_							<u>'</u>
HVAC SYSTEMS - C	OOLIN	G					
Cooling Equipment Type and Capacity <sup>1, 2</sup>		Minimum Efficiency (SEER/EER or COP)	Distribution Duct of			Thermostat Type	Configuration (Central, Split, Space, Package or Hydronic)
. Indicate Type (A/C, Heat p. 2. Refer to the HERS Verifica B. Indicate Type or Location WATER HEATING	ation section	on on Pages 3 and 4 of	f the CF-1R For	m for additional i	requireme	nts and check app	olicable boxes.
list water heaters and boiler. Tas or propane fired and may							
water Heater Type/Fuel Type <sup>1</sup>	Di	ed in all component partistribution Type dard, Recirculating) <sup>2</sup>	Number In System	Tank Capacity (gal)		ergy Factor or	External Tank Insulation R-Value <sup>3</sup>
- 7 F V	(Starre		~ ) =====	(841)			
. Indicate Type (Storage Gas Recirculating systems serve not allow the installation of The water heating tank and	ring multip of a recirci	ole dwelling units shall ulating water heating s	meet the recirc system for single	e dwelling units.	ents of §15	50(n). The Prescr	iptive requirements do
					cial Feati	ures specified in th	his checklist below.
These items may require writ							
hese items may require writ Radiant Barrier (Roof	f) 🗆 Y	YES DO	nt Packages C, I	and E.			
These items may require write Radiant Barrier (Roof ES: Required in Climate Zoof Elab Edge (Perimeter)	f)	YES NO and 8-15 in Componen tion YES	□NO				
Chese items may require write Radiant Barrier (Roof YES: Required in Climate Zo Slab Edge (Perimeter) YES: In all Climate Zones us	ones 2, 4, a Insulat sing Comp	YES □ NO and 8-15 in Componen tion □ YES □ ponent Package C, and	□NO		onent Pac	kages D and E, R-	-7 insulation is required
These items may require write Radiant Barrier (Roof YES: Required in Climate Zous Elab Edge (Perimeter) YES: In all Climate Zones us Heated Slab Insulation	ones 2, 4, a Insulat sing Comp	YES	NO in Climate Zon	ne 16 under Comp			
Chese items may require write Radiant Barrier (Roof CES: Required in Climate Zo Slab Edge (Perimeter) CES: In all Climate Zones us Heated Slab Insulation CES: Slab edge insulation required Raised Slab Insulation CES: In Climate Zones 1, 2, 1	ones 2, 4, a land I lan	YES	NO in Climate Zor mponent Packag s required, and i	ges in all Climate Z	Zones. Se	e details in Table	118-A of the standards
Radiant Barrier (Roof ES: Required in Climate Zo Glab Edge (Perimeter) (ES: In all Climate Zones us Heated Slab Insulation (ES: Slab edge insulation req Raised Slab Insulation (ES: In Climate Zones 1, 2, 1 eackages D and E. Raised sl	ones 2, 4, a Insulate sing Comp y quired for y 11, 13, 14 lab insulat	YES	NO in Climate Zor mponent Packag s required, and i	ges in all Climate Z	Zones. Se	e details in Table	118-A of the standards
YES: In Component Package	ones 2, 4, a lab insulate	AYES INO and 8-15 in Component tion YES I ponent Package C, and YES NO heated slabs in all Cor ES NO & 16 R-8 insulation is tion is not required in C NO Climate Zones, a Min	NO in Climate Zor mponent Packag s required, and i	ges in all Climate 2 n Climate Zones 1 kage C.	Zones. Se	e details in Table -4 insulation is re	118-A of the standards
Radiant Barrier (Roof Radiant Barrier) (Roof YES: Required in Climate Zo Slab Edge (Perimeter) YES: In all Climate Zones us Heated Slab Insulation YES: Slab edge insulation required Raised Slab Insulation YES: In Climate Zones 1, 2, 1 Packages D and E. Raised slab Insulation YES: Thermal Mass	ones 2, 4, a lab insulate	AYES INO and 8-15 in Component tion YES I ponent Package C, and YES NO heated slabs in all Cor ES NO & 16 R-8 insulation is tion is not required in C NO Climate Zones, a Min	NO in Climate Zor mponent Packag s required, and i	ges in all Climate 2 n Climate Zones 1 kage C.	Zones. Se	e details in Table -4 insulation is re	118-A of the standards

Prescriptive Certificate of Compliance: Residential		CF-1R		
Newly Constructed Buildings and Additions Greater Than		(Page 5 of 5)		
Project Name:	Climate Zone #	# of Stories		
HERS VERIFICATION SUMMARY The enforcement agence	m should pay special attention to the HEPS Measures s	nacified in this		
checklist below. A completed and signed CF-4R Form for all the measur				
inspection.	and a specific and a supplied to the supplied			
Duct Sealing & Testing □ YES □ NO				
YES: New ducted systems are to be sealed and duct leakage shall be less	than 6% per §151(f)10 in all Component Packages in a	all Climate Zones.		
HERS verification is required for this measure.				
Refrigerant Charge - Split System □ YES □ NO				
YES: In Climate Zones 2 and 8-15 in all Component Packages, when a n	ewly ducted split A/C or heat pump is installed, a refrig	gerant charge		
measurement shall be verified per §151(f)7A.				
HERS verification is required for this measure.				
Central Forced Air Handlers: Integrated Ventilation Sy				
YES: In all Component Packages and in all Climate Zones, when a centr		the ventilation		
requirements of §150(o), the central forced air system fans must draw le <i>HERS verification is required for this measure.</i>	ss than 0.38 watts per CFWI per §131(1)11.			
Ducted Split Central Air Conditioners and Heat Pumps:	: Airflow and Watt Draw ☐ YES ☐ NO	)		
YES: In all Component Packages in Climate Zones 10 through 15, when				
and fan watt draw shall be verified per §151(f)7B.	a nowly autora spinor 2 e or now pump system is insur-	iou, mo unine m		
HERS verification is required for this measure.				
<b>Documentation Author's Declaration Statement</b>				
I certify that this Certificate of Compliance documentation is accompliance.	curate and complete.			
Name:	Signature:			
Company:	Date:			
Company.	Date.			
Address:	If Applicable			
	☐ CEA or ☐ CEPE (Certification #	47.		
City/State/Zip:	Phone:	+).		
,				
Responsible Building Designer's Declaration Statement				
• I am eligible under Division 3 of the California Business and Profess	sions Code to accept responsibility for the building desi	ign identified on		
<ul><li>this Certificate of Compliance.</li><li>I certify that the energy features and performance specifications for</li></ul>	the building design identified on this Certificate of Con	nnliance conform		
to the requirements of Title 24, Parts 1 and 6 of the California Code		ipiidiice comorni		
• The building design features identified on this Certificate of Compliance				
building design on the other applicable compliance forms, workshee agency for approval with this building permit application.	ts, calculations, plans and specifications submitted to the	ne enforcement		
Name:	Signature:			
Company:	Date:			
Address:	License:			
City/State/Zip:	Phone:			
Engagintary and an available and the state of the state o	4 and 4 by Engage Harding and 1 000 7773 2200			
For assistance or questions regarding the Energy Standards, con-	шсі іне Energy Hottine at: 1-800-//2-3300.			
Registration Number: Registration Date	r/Time · HERS Provider			

2008 Residential Compliance Forms

	ptive Certi		Compli	ance:								CF-	-1R ADD
Resider	ntial <i>Additio</i>	ons										(Pag	ge 1 of 5)
Site Add	ress:						En	forcement	t Agency:		Date:		
General I	nformation												
Project Na	ame								Clima	te Zone #		# (	of Stories
_	Type ☐ Sing		<u> </u>	ılti Famil	,				tion: N, E,			1, 1/	200 62
(CFA):	ed Floor Area	oi Additio	on	New Ad	dition S						han or equa an 1000 ft²)	al to 10	000 ft <sup>-</sup>
	or Alterations : Existing HV								ncluded or	the CF-1	R -ADD Fo	rm.	
Prescri	ptive Enve	lope R	equiren	ents fo	r Add	itions							
• For 100 "Pkg D	Use Option of the state of the	the Propo lues in th	sed values e Proposed	must be eq Columns.	ual or g	reater than t	he Stand	lard colum	n or when	indicated v	when using F		
	s than 1,000 ft² compliance req												
	of Addition	in ements	s, see RCM	100 ft <sup>2</sup>		131-c. or y	131(0) i	in the KCN			n 1,000 ft <sup>2</sup>	и Сон	mus.
	ponent	Star	ıdard		osed	Comi	nent	Star	ndard		posed	C	omment
	Insulation		-19			Minir		1	g D		F ****		e 151-C
Wall I	nsulation	R	-13			Minir	num	R	-13			N	Iinimum
Floor I	Insulation	R	-13			Minii	num	Pk	g D			Table	e 151-C
		U-	~~~~	U-	~~	_		U-		U-			Fill out
Fene	estration	factor	SHGC	factor	SHGC	Eliterii		factor	SHGC	factor	SHGC		nestration posed Areas
		0.40	Pkg D			values Skip		0.40	Pkg D				Below
	ım Glazing Area	50	) ft <sup>2</sup>		f	To Ro	ofing ucts	of CFA	e D (20% ) + Glass noved		$\mathrm{ft}^2$	Fill out  Additional Allowed Fenestration Areas Below	
Radia	nt Barrier	N	I/A					Pk	g D		Table 1	51-C	
Ro	ofing	Pk	g D	See	Roofing	Products Bel	ow	Pk	g D	See	Roofing Pr	oducts	Below
Onagua	Sunface De	toila E	. 41 6	J	CNT.	337 - 11	E	. 64		. T.LL.	.1.		
Opaque A	Surface De	etans Foi	C C	d portione	ed of Ma	E E	Furrin		G	n Table b	elow.	<u> </u>	J
A	Б	Propos	ed See Note		D	Standard	1	,		es From JA	44 Table		J
Tag/ ID <sup>1</sup>	Assembly N or Type <sup>1</sup>	ame	Framing Material and Size <sup>2</sup>	Spa	kness, icing, Other <sup>3</sup>	U- factor <sup>4</sup>	JA4 7 Num	Γable	Framed Cavity L-value <sup>6</sup>	Continuor Insulatio R-Value	us JA- n Assen	nbly	Proposed Assembly U-factor <sup>9</sup>
							1						
	urred assemblies instruction table		g for Contin	uous Insula	tion R-va	lue, see Page .	IA4-3 and	d Equation 4	4-1. For cal	culating fur	red walls use	the Mas	s and
-	g/ID indicate th	-											
	the Assembly Metal, Metal Bi			_			_				e Frame type	e and S	ize: For
3. Enter th	he thickness for	r mass in	inches or S	pacing bet	ween fra	ming membe	rs enter,	; 16"or 24			l other asser	nbly de	escription
	Concrete Sand									3. r			
	n the Climate			-	-		for eac	n differeni	assembly.	Name or ty	pe.		
	e Table numbe he R-value that						ramino.	otherwise	enter "0"				
	he Continuous	_			-	-	_		,	-			
	e row and colu		-			•			the Assemb	bly U-facto	r in Column	J.	
9. The <b>Pro</b>	<b>oposed</b> Assemb	ly U-facto	or, Column	J, must be	equal to	or less than	the <b>Star</b>	<b>ndard</b> U-fa	ctor in Col	lumn E to	comply.		
		<u> </u>		<u> </u>									

Prescriptive Certificate of Compliance:								
Residential Additions		(Page 2 of 5)						
Site Address:	Enforcement Agency:	Date:						

Furring Strip	s Construction											
A	В	C	D	E	F	G	H	I	J	K	L	M
Proposed P	roperties of M	lasonry and	Concre	ete	Ad	lded In	terior or l	Exterior I	nsulatio	n		
	Walls From I		i	n Furri	ng Space	from Re	ference					
Joint A	ppendix Table	4.3.5, 4.3.6,	4.3.7			Joint.	Appendix	Table 4.3	3.13			
Mass Thickness <sup>1</sup>	Assembly Name or Type <sup>2</sup>	JA4 Table Number <sup>3</sup>	JA4 -Mass Cell Value <sup>4</sup>	Mass U-Factor <sup>5</sup>	Interior or Exterior of Insulation Layer	Frame Thickness	Frame Type Wood or Metal	Furring Cavity R-value <sup>3</sup>	JA4 -Mass Cell Value <sup>4</sup>	Effective R-value <sup>5</sup>	Final Assembly U-factor <sup>6,7</sup>	Comment

- 1. Indicate the Mass Thickness from Reference Joint Appendix JA.
- 2. Indicate the Assembly Name or type: Roof/Ceiling, Walls, Floors, Slabs, Crawl Space, Doors and etc... Indicate the Frame type and Size: For Wood, Metal, Metal Buildings, Mass, enter 2x4, 2x6, or etc... see JA4 for other possible frame type assemblies.
- 3. Enter the Table number that closely resembles the proposed assembly.
- 4.Enter the row and column of the U-factor value.
- 5. Enter the Effective R-value listed in the JA4 Table Number.
- 6. The Final Assembly is calculated by using Equation 4-1 or Equation 4-4 of the Reference Joint Appendix JA4. Enter the value in Column L.
- 7. Insert the Final Assembly U-factor value back on to the Opaque Surface Details table in Column J.

FENESTRATION PROPOSED AREAS					
Fenestration Type and Frame (Window, Glass Door or Skylight)	Orientation (North, East, South, West)	PropsedArea <sup>1</sup> (ft <sup>2</sup> )	Maximum U-factor <sup>2, 3</sup>	Maximum SHGC <sup>2, 3, 4</sup>	NFRC or Default Values <sup>5</sup>
	Total				

- 1. Fenestration area is the area of total glazed product (i.e. glass plus frame). Exception: When a door is less than 50% glass, the fenestration area may be the glass area plus a "2 inch frame" around the glass.
- 2. Enter value from Component Package D Requirements in Table 151-C.
- 3. Actual fenestration products installed and as indicated in CF-6R-ENV Form shall be equivalent to or have a lower U-factor and/or a lower SHGC value than that specified on the CF-1R ADD Form.
- 4. Submit a completed WS-3R Form if a reduced SHGC is calculated with exterior shading.
- 5. If applicable at this stage enter "NFRC" for NFRC Certified windows or CEC "Default" values found in Table 116-A or B.

Registration Number:	Registration Date/Time:	HERS Provider:	
	Registration Dute/Time.		
2008 Residential Compliance Forms		$\Delta n a n$	st 2009
2000 Residential Compilance Forms		Augu	31 2007

Prescriptive Certificate of C	ompliance:										F-1R AI	
Residential Additions Site Address:				E-e	anaamant A			Data		(Pa	age 3 of	<u>5)</u>
Site Address:				Eni	orcement A	agency:		Date	:			
				L								
ADDITION ALLOWED FENEST	DATION ADE	46										
ADDITION ALLOWED FENEST	A A A A A A A A A A A A A A A A A A A	E E	1	С		D	Е				F	
	CFA of	Allow		Allowed Are	A	rea	Total .	Area		Pro	posed Area	3, 4
	Addition ft <sup>2</sup>	of C		(A x B)	Ren	noved <sup>2</sup> ft <sup>2</sup>	Allov (C+				able Abov	
Total Fenestration Area	11					11	(6.1	<i>D</i> )	>			
West Fenestration Area <sup>1</sup>		.0	5						>			
(Required In CZ's 2, 4 & 7 -15)  1. West Fenestration Area includes w	vest-slaning skyli			hts with a ni	tch less that	1.12			_			
2. West facing glazing area removed	cannot be "cour	ited" twi	ce." In or	der to distrib	ute the wes		area remo	oved to	the o	ther c	rientation	S,
input the west glazing area remove 3. Include the Proposed Area of the V												
4. To meet compliance, the Proposed						for BOTE	I the Tota	l and W	est F	Tenest	ration Are	as.
DOOFING BRODUCTS (CA	OL DOOF	7) 0174										
ROOFING PRODUCTS (CO		, 0		na maduat "	Cool Poof"	naguinan	anta Not	o: If an		of th	a hoves an	
checked below, the Aged Solar Reflec												ę
table below.			1				- (-)	<i>T</i>	<i>T</i> ····			
☐ Roofing compliance Not Required									1.0			
■ Roofing compliance Not Required less than 5lb/ft <sup>2</sup> .	in Climate Zone	es I throu	igh 9 and	16 with a Lov	v-Sloped. I	Roofs pite	ch greater	than 2:	12 an	id pro	duct weig	nt.
☐ Roofing area covered by building	integrated: photo	ovoltaic n	anels and	solar therma	panels are	exempt f	rom the a	bove Co	ool R	oof c	riteria	
☐ Roof constructions that have therm	nal mass over the	e roof me	mbrane w	ith at least 25	Îb/ft² is ex	empt froi	n the abov	ve Cool	l Roo	f crite	eria.	
Note: If no CRRC-1 label is available, the applicable box below if Exempt from						ce Appro	ach to sho	w com	plian	ce, ot	herwise, c	neck
are appreciate ook octow it Exempt in	Roof S		1	ct Weight	Product	Ageo	l Solar	The	erma	1		
CRRC Product ID Number <sup>1</sup>	≤ 2:12			$t^2 \ge 5 lb/ft^2$	Type <sup>2</sup>		etance <sup>3,4</sup>		ittanc		SRI <sup>5</sup>	
						$\square^4$						
						$\square^4$						
						$\square^4$						
						$\Box^4$						
1. The CRRC Product ID Number can be o	btained from the C		Rating Cou	ncil's Rated Pr	oduct Direct		w.coolroofs	s.org/pro	oducts	s/searc	h.php	
2. Indicate the type of product is being used						o tha Initia	I Doffootour		. Guana	<i>th</i> 2 22		
<ol> <li>If the Aged Reflectance is not available to directory and use the equation (0.2+0.)</li> </ol>	-	-			-		-		grom	ine su	me	
4. Check box if the Aged Reflectance is a co	alculated value usi	ng the equ	ation abov	e.								
<ol><li>Calculate the SRI value by using the SRI the SRI- Worksheet to the CF-1R.</li></ol>	- Worksheet at <u>htt</u> j	<u>)://www.ei</u>	ıergy.ca.go	<u>v/title24/</u> and e	enter the resu	lting value	e in the SRI	Columr	ı abov	ve and	attach acop	ny of
To apply <b>Liquid Field Applied Coati</b>	ngs, the coating	must be a	applied ac	ross the entir	e roof surfa	ce and m	eet the dry	mil th	ickne	ess or	coverage	
recommended by the coatings manufac	cturer and meet	minimum	performa	nce requirem	ents listed i	n §118(i)	4. Select	the app	olicab	ole coa	ating:	
☐ Aluminum-Pigmented Asphalt Ro	of Coating	☐ Ceme	ent-Based	Roof Coating	2	☐ Oth	er					

Prescriptive Certificate o	of Compliance:						CF-1R ADI
Residential Additions							(Page 4 of 5)
Site Address:			En	forcement Age	ncy:	Date:	
			l				
HVAC SYSTEMS - HEAT	ING						
Heating Equipment Type and Capacity <sup>1, 2, 3</sup>	Minimum Efficiency (AFUE or HSPF)	Distribution Type and Location <sup>4</sup>		Duct or Piping Insulation R-Value	Thermostat Type	(C Spa	onfiguration Central, Split, ce, Package or Hydronic)
J1 1 J	, ,				J1		,
. Indicate Heating Type (Centra Electric resistance heating is \$\leq 2 KW or 7,000 Btu/hr electric Refer to the HERS Verificatio Indicate Type or Location (Di	allowed only in Compon c heating is controlled by on section on Pages 3 and ucts, Hydronic in Floor,	ent Package C, or a time-limiting de l 4 of the CF-1R-A	except w vice not	here electric hed exceeding 30 mi	ting is supplem nutes). See §15	1(b)3 except	tion.
IVAC SYSTEMS - COOL	ING	Г	1		Ī		<u> </u>
Cooling Equipment Type and Capacity <sup>1,2</sup>	Minimum Efficiency (SEER/EER or COP)	Distribution Type and Location <sup>3</sup>	С	Ouct or Piping Insulation R-Value	Thermostat Type	(0	Configuration Central, Split, ace, Package or Hydronic)
WATER HEATING List water heaters and boilers for the said or propane fired, and may not water pipes is required in all water Heater Type/Fuel  Type  Type	ot exceed 50 gallons. Ho	ot water pipe insulate zones.  e Numl	er In		er to the kitcher  Energy I	a(s) and on a	
. Indicate Type (Storage Gas, F. P. Recirculating systems serving not allow the installation of a P. The water heating tank and p	multiple dwelling units say recirculating water hed	shall meet the reci uting system for si	gle dwel	ling units.	§150(n). The I	Prescriptive	requirements do
ES: Required in Climate Zones Slab Edge (Perimeter) Insures: In Climate Zone 16 under € Heated Slab Insulation □ ES: Slab edge insulation requirements	cation and documentation  YES	ons larger than 10 NO R-7 insulation is re	of ft <sup>2</sup> .  quired.  ee details	in Table 118-A	of the standard	S.	
<b>Γhermal Mass -</b> To obtain Co	ompliance Credit for the	installation of ther	mal mass	, use the Perform	nance Approach	1.	

Prescriptive Certificate of Compliance: CF-1R ADI						
Residential Additions		(Page 5 of 5)				
Site Address:	Enforcement Agency	: Date:				
HERS VERIFICATION SUMMARY - The enforcement agency sho checklist below. A completed and signed CF-4R Form for all the measures inspection.						
<b>Duct Sealing &amp; Testing</b> HERS verification is required for this measure.						
□ YES □ NO YES: In all Climate Zones, if a new space-conditioning the addition alone, the ducts are to be sealed and YES □ NO YES: In Climate Zones 2 and 9-16, if more than 40 line space to serve the addition, the ducts are to be sea □ EXCEPTION: Existing duct systems that are of EXCEPTION: The existing HVA outdoor condensing unit of a split system, cooling addition, the ducts are to be sealed and tested per □ EXCEPTION: Duct systems that are document verification in accordance with procedures in t□ EXCEPTION: Duct systems with less than 40 l□ EXCEPTION: Existing duct systems construct	tested per §151(f)10.  ar feet of new or replaceme iled and tested per §152(b)1  extended, which are constituted in the constitute of the	nt ducts are installed in unconditioned D. ructed, insulated or sealed with asbestos. cluding replacement of the air handler, nce heat exchanger) and will serve the y sealed confirmed through HERS Appendix RA3. d space.				
Refrigerant Charge - Split System HERS verification is required for  ☐ YES ☐ NO YES: In Climate Zones 2 and 8-15, if a newly ducted refrigerant charge measurement shall be verified outdoor condensing unit of a split system, coolin addition, a refrigerant charge measurement shall	split A/C or heat pump is in l per §151(f)7A. AC equipment is replaced (i g or heating coil, or the furr	ncluding replacement of the air handler,				
Central Fan Integrated Ventilation System – Airflow and I		at apply for additions 1 000 ft <sup>2</sup> or less				
Ducted Split Systems - Air Conditioners and Heat Pumps:						
☐ YES ☐ NO YES: In Climate Zones 10 through 15, if a new space-or						
serve the addition alone, the airflow and fan watt						
☐ YES ☐ NO YES: In Climate Zones 10 through 15, if the existing spand will serve the addition, the airflow and fan wa						
Documentation Author's Declaration Statement	ut draw shan be vermed per	§132(b)1F.				
• I certify that this Certificate of Compliance documenta	tion is accurate and c	complete.				
	ignature:					
Communication		Diti				
Company:		Date:				
Address:		If Applicable □ CEA or □ CEPE (Certification #):				
City/State/Zip:		Phone:				
<ul> <li>Responsible Building Designer's Declaration Statement</li> <li>I am eligible under Division 3 of the California Business and Profession this Certificate of Compliance.</li> <li>I certify that the energy features and performance specifications for the to the requirements of Title 24, Parts 1 and 6 of the California Code of</li> <li>The building design features identified on this Certificate of Compliance building design on the other applicable compliance forms, worksheets,</li> </ul>	building design identified on Regulations.  The are consistent with the information in th	on this Certificate of Compliance conform Cormation provided to document this				
agency for approval with this building permit application.  Name:	Signature:					
Company:		Date:				
Address:		License:				
City/State/Zip:		Phone:				
For assistance or questions regarding the Energy Standards, contact	t the Energy Hotline at:	<i>1-800-772-3300</i> .				
Registration Number: Registration Date/Ti	me:	HERS Provider:				

General	Information													
Site Add	lress:				Enfo	orcemen	t Agency	:		Da	Date:			
Building	Type □ Single Fam	ily 🗆 Multi	Family		Circl	le the Fro	ont Orient	ation: N,	E, S, W,	or degre	ees			
Condition	ned Floor Area (CFA	A):										n □ Roof □ Water Heater	l HVAC	
NOTE: 7	This form is not to b	e used for Ne	wly Con	structed I						•				
	on Values For Opaq	ue Surfaces ()	for Furri	ing use th	e Mass	s and Fu	rring Stri <sub>j</sub>	ps Constr	ruction tab	le belo	w)			
□ Openi mandato □ Repla	y Alteration ing of framed cavity ry minimum insulation cement of entire as - D insulation values	on value per § sembly – Rep	§150 for lacement	the altered t of an end	d asser ire wa	mbly. Fil all, ceilin	l in Colu	nns A –C	and enter	manda	tory inst	ulation value	in Column H.	
Opaqu	e Surface Detail	s For the fur	rred por	tioned of	Mass	Walls so	ee Furrin	g Strips	Construc	tion Ta	ble belo	w.		
A	В	C - See Not	te	D		E	F		G	<u> </u>	H	I	J	
Tag/	Assembly Name	oposed See Not Framing Materia	g   7	Thickness Spacing,		tandard U-	JA4 T		Val Framed Cavity	Conti	m JA4 7 inuous lation	Table JA4 Assembly	Proposed Assembly	
ID <sup>1</sup>	or Type <sup>1</sup>	and Size	_	or Other <sup>3</sup>		factor <sup>4</sup>	Numl		R-value <sup>6</sup>		alue <sup>7</sup>	Cell Value <sup>8</sup>	U-factor <sup>9</sup>	
	furred assemblies, acc Construction table belov		ntinuous I	Insulation I	?-value,	, see Page	2 JA4-3 and	d Equation	1 4-1. For a	calculati	ng furred	walls use the	Sass and	
2. Indicat Wood, 3. Enter such a. 4. Based 5. Enter t 6. Enter 7. Enter 9. The Pr Furring	ng/ID indicate the ide te the Assembly Nam Metal, Metal Buildi the thickness for ma s Concrete Sandwick on the Climate Zone the Table number the the R-value that is b the Continuous Insu the row and column roposed Assembly U- Strips Construction B	ne or type: Ronngs, Mass, enter sin inches of Panel, Spann; enter the State closely reserving installed lation R-value of the U-factor factor, Columna Table for M	of/Ceilin, ter 2x4, r Spacin, drel Pan andard U embles th t in the w e for the f or value E nn J, mus	ag, Walls, 2x6, or et g between nel, Logs, U-factor fi ne propose vall cavity proposed based on ( st be equa	Floors c se frami Straw om Ta ed asse or bet assem Column l to or	s, Slabs, ive JA4 for ing memble Bale Parable 151-embly. It ween the ably; other frable less than	Crawl Sport other posters enter nel and et. B, C or E. framing; erwise, en the Stan	ssible fra ; 16" or 2 c ) for each otherwis ter "0". e and ente	time type a 24"OC; or the different se, enter " er the Asse factor in C	assembli Other assemb O". mbly U folumn	es. for all of oly Name	ther assembly e or type. n Column J		
Propo	sed Properties of M		Concrete	e					Insulatio	n				
Jo	Walls From I int Appendix Table		4.3.7		]		ng Space Appendix							
Mass Thickne	Assembly Name or	JA4 Table Number <sup>3</sup>	JA4 -Mass Cell Value <sup>4</sup>	Mass U-Factor <sup>5</sup> Interior or	Exterior of Insulation Layer	Frame Thickness	Frame Type Wood or Metal	Furring Cavity R-value <sup>3</sup>	JA4 -Mass Cell Value <sup>4</sup>	Effective R-value <sup>5</sup>	Fina Assem U-fact	nbly	Comment	

Registration Date/Time: \_

\_ HERS Provider: \_

August 2009

CF-1R-ALT

(Page 1 of 5)

# of Stories

Climate Zone #

**Prescriptive Certificate of Compliance: Residential** 

Residential Alterations

Registration Number: \_\_\_\_\_2008 Residential Compliance Forms

**Project Name:** 

Prescriptive Certificate of Compliance: Residential		CF-1R-ALT
Residential Alterations		(Page 2 of 5)
Project Name:	Climate Zone #	# of Stories

### Mass and Furring Strips Construction (footnotes)

- 1. Indicate the type of assembly to include; Hollow Unit Masonry Walls, Solid Unit Masonry, Solid Concrete Walls, Etc. Additional assemblies can be found Reference Joint Appendix JA4.
- 2. This is the U-Factor based on the thickness of the assembly in inches.
- 3. The R-value of the insulation to be added on the interior or exterior of the assembly.
- 4. The Calculated R-Value is the R-value of the furred out section of the assembly.
- 5.-6.The Final Assembly is calculated using Equation 4-2 or Equation 4-4of the Reference Joint Appendix JA4. The equation is the inverse of Column D added to Column I. Column K is the inverse from column J.
- 7. Insert the calculated U-factor value on to the Opaque Surface Details in Column J

FENESTR.	ATION PROPOSED	AREAS

□ Replacing window alone – Replacement windows shall meet the U-Factor and SHGC Value requirements of Component Package D in
Table 151-C. The Total Fenestration and West-facing Area requirements are not applicable.

□ Adding 50ft² or less of window area – Newly installed windows shall meet the U-Factor and SHGC Value requirements of Component Package D in Table 151-C.

□ Adding more than 50ft<sup>2</sup> of window area − Newly installed windows shall meet the U-Factor and SHGC Value and the Fenestration Area requirements of Component Package D in Table 151-C. Complete the Altered Fenestration Allowed Area Table on Page 2 of the CF-1R-ALT

Fenestration Type and Frame (Window, Glass Door or Skylight)	Orientation (North, East, South, West)	PropsedArea <sup>1</sup> (ft <sup>2</sup> )	Maximum U-factor <sup>2, 3</sup>	Maximum SHGC <sup>2, 3, 4</sup>	NFRC or Default Value <sup>5</sup>

- 1. Fenestration area is the area of total glazed product (i.e. glass plus frame). Exception: When a door is less than 50% glass, the fenestration area may be the glass area plus a "2 inch frame" around the glass.
- 2. Enter value from Component Package D Requirements in Table 151-C.
- 3. Actual fenestration products installed and as indicated in CF-6R-ENV Form shall be equivalent to or have a lower U-factor and/or a lower SHGC value than that specified on the CF-1R ALT Form.
- 4. Submit a completed WS-3R Form if a reduced SHGC is calculated with exterior shading.
- 5.If applicable at this stage enter "NFRC" for NFRC Certified windows or are CEC "Default" values found in Table 116-A or B.

ALTERED FENESTRATION ALLOWED AREAS (Complete if more than 50ft <sup>2</sup> of fenestration is added)									
	A	В	С	D	Е	F		G	
	CFA of Entire Dwelling	Allowed % of CFA	Existing Fenestration Area	Fenestration Area Removed	Fenestration Area Added	Total Area Allowed (A x B)		Proposed Area <sup>2</sup> (E-D) + C	
Total Fenestration Area (ft²)		.20					\		
West Fenestration Area <sup>1</sup> (Required In CZ's 2, 4 & 7-15)		.05					>		

- 1. West Fenestration Area includes west-sloping skylights and any skylights with a pitch less than 1:12.
- 2. West facing glazing area removed cannot be "counted" twice." In order to distribute the west glazing area removed to the other orientations, input the west glazing area removed in the Total Fenestration Area row, column D.
- 3. Include the Proposed Area of the West facing fenestration in both Area columns below.
- 4. To meet compliance, the Proposed Area must be less than or equal to the Total Allowed Area for BOTH the Total and West Fenestration Areas.

Registration Number:	Registration Date/Time:	HERS Provider:	
2008 Residential Compliance Forms			August 2009

Prescriptive Certificate of Comp	liance: R	esidenti	al					F-1R-ALT
Residential Alterations					1			Page 3 of 5
Project Name:					Cl	imate Zone #	#	of Stories
ROOFING PRODUCTS (COOL RO	, -							
When the area of exterior roof surface to								iichever is
less, the new roofing area must meet the r Check applicable alternative or exception								Notes If and
one of the alternatives or exception below i	-	-				-	-	
\$118(i) are not applicable. Do not fill table		ine rigea i	sorar regree		inermat Em	ittanee requiremen	is joi roojing p	rouncis in
☐ Cool Roofs Not Required in Climate Zoo		4, and 16	with a Low	Sloped. Le	ess or 2:12 p	itch.		
$\square$ Cool Roofs Not Required in Climate Zonthan 5lb/ $\text{ft}^2$ .							and product un	it weight less
Alternatives to §152(b)1Hi and §152(b)H								
☐ Insulation with a thermal resistance of a	t least 0.85	hr·ft².°F/B	tu or at leas	t a 3/4 inch	air-space is a	dded to the roof dec	ck	
over an attic; or								
Existing ducts in the attic are insulated					150	ρ2 - ε - μ: - α		
☐ In climate zones 10, 12 and 13, with 1 f where at least 30 percent of the free ver					-		, апи	
☐ Building has at least R-30 ceiling insula		a is within	2 leet vertic	ai distance	01 1116 1001 11	uge, or		
☐ Building has radiant barrier in the attic		e requirem	ents of 8151	(f)2: or				
☐ Building has no ducts in the attic; or	8	1	3	(-)-,				
☐ In climate zones 10, 11, 13 and 14, R-3	or greater r	oof deck ii	nsulation ab	ove vented	attic.			
Exception to §152(b)1Hiii, Low-slope roo	of (pitch ≤	2:12)						
☐ Building has no ducts in the attic.								
Other Exceptions				l a 4la a a l			C1 D f -	
☐ Roofing area covered by building integr ☐ Roof constructions that have thermal ma								
Note: If no CRRC-1 label is available, this	complianc	e method	cannot be u	sed, use the	Performano	e Approach to sho		
Check the applicable box below if Exer							1	
CRRC Product ID Number <sup>1</sup>	Roof 3 ≤ 2:12			Weight $\geq 5 \text{lb/ft}^2$	Product Type <sup>2</sup>	Aged Solar Reflectance <sup>3,4</sup>	Thermal Emittance	SRI <sup>5</sup>
						$\square^4$		
						$\Box^4$		
						$\square^4$		
						$\square^4$		
						$\square^4$		
1. The CRRC Product ID Number can be obtained 2. Indicate the type of product is being used for the	ne roof top, i.	e. single-pi	ly roof, aspho	alt roof, meta	ıl roof, etc.	· · ·		
3. If the Aged Reflectance is not available in the C directory and use the equation (0.2+0.7( $\boldsymbol{\rho}_{initi}$ )	-	_			-	-	value from the s	ume
arrectory and use the equation $(0.2\pm0.7) oldsymbol{p}_{initi}$ 4. Check box if the Aged Reflectance is a calculate				vaiue. wher	e p is the Inti-	ai soiar Kejteciance.		
5. Calculate the SRI value by using the SRI- Work				tle24/ and en	iter the resulti	ing value in the SRI C	olumn above and	l attach acopy o
the SRI- Worksheet to the CF-1R.								
To apply <b>Liquid Field Applied Coatings</b> , the recommended by the coatings manufacturer								
☐ Aluminum-Pigmented Asphalt Roof Co	ating	☐ Ceme	nt-Based R	oof Coating	9	Other		
		1				I		

Prescriptive Certificat	e of Compliance:	Kesidential					CF-1R-ALT	
Residential Alterations					31		(Page 4 of 5)	
Project Name:	Toject Name.				Climate Zone #	# of Stories		
HVAC SYSTEMS - HEA	ATING							
	Minimum			or Piping			onfiguration	
Heating Equipment	Efficiency	Distribution		ılation	Thermostat		Central, Split,	
Type and Capacity <sup>1,2,3</sup>	(AFUE or HSPF)	Type and Location	1' R-	Value	Туре	Space, Pa	ackage or Hydronic)	
<ol> <li>Indicate Heating Type (Cer</li> <li>Electric resistance heating         ≤ 2 KW or 7,000 Btu/hr el</li> <li>Refer to the HERS Verifica</li> <li>Indicate Type or Location</li> </ol>	is allowed only in Com ectric heating is contro tion section on Page 4	nponent Package C, c olled by a time-limitir of the CF-1R-ALT Fo	or except whe ng device not	ere electric exceeding	heating is supple 30 minutes). See	§151(b)3 exc	ception.	
HVAC SYSTEMS - COC	•							
II, IIC SISIEMS - COC	Minimum							
	Efficiency		Duct o	or Piping		C	onfiguration	
Cooling Equipment	(SEER/EER or	Distribution		ılation	Thermostat		Central, Split,	
Type and Capacity <sup>1,2</sup>	COP)	Type and Location	1 <sup>3</sup> R-1	Value	Туре	Space, Pa	Space, Package or Hydronic	
1. Indicate Cooling Type (A/C 2. Refer to the HERS Verifica 3. Indicate Type or Location	tion section on Page 4	of the CF-1R-ALT F	form for addi	tional requi	irements and chec	k applicable	boxes.	
List water heaters and boilers gas or propane fired, and ma hot water pipes is required in Water Heater Type/Fuel	y not exceed 50 gallons	s. Hot water pipe ins es in all climate zone	ulation from		heater to the kitch			
Type <sup>1</sup>	(Standard, Reci		System	Capacity		Efficiency	R-Value <sup>3</sup>	
Indicate Type (Storage Gas     Recirculating systems serve     not allow the installation o     The external water heating	ing multiple dwelling u f a recirculating water	nits shall meet the re heating system for si	ingle dwelling	g units.		Prescriptiv	e requirements do	
5. The external water neating	tank ana pipes snati b	e insulatea lo meet in	ie requiremen	us oj §150	())·			
SPECIAL FEATURES These items may require write NEW ROOF ASSEMBLY -	ten justification and do				al Features specij	fied in this ch	necklist below.	
NEW ROOF ASSEMBLY - The radiant barrier requireme Slab Edge (Perimeter) Insul	ent of §151(f)2 does not	t apply to roof alterat	ions.					
YES: In Climate Zone 16 in C	Component Packages I		quired.					
Heated Slab Insulation   YES: Slab edge insulation red	I YES	abs in all Climate Zor	nes See deta	ils in Table	e 118-A of the sta	ndards		
Raised Slab Insulation	YES D NO							
YES: In Climate Zones 1, 2, Thermal Mass	11, 13, 14 & 16, R-8 in	sulation is required;	ın Climate Zo	ones 12 & 1	15, R-4 is required	d under comp	oonent Package D.	
To obtain Compliance Credit	for the installation of t	hermal mass, use the	Performance	e Approach				
egistration Number:		Registration Date	e/Time:		HERS	Provider:		
008 Residential Compliand	ce Forms				11210		August 2009	

Project Name: HERS VERIFICATION SUMMARY The enforcement agency should pay specie		(Page 5 of 5
	Climate Zone #	# of Stories
A completed and signed CF-4R Form for all the measures specified she spection.    Spection	new or replacement ducts are installed why installed ducts are to be insulated which are constructed, insulated or ing system (HVAC equipment and contributions) is replaced (including the replaced coil, or the furnace heat exchanger)	ed in unconditioned d per §151(f)10.  r sealed with asbesto ducting) is replaced, the ment of the air handled the ducts are to be
verification in accordance with procedures in the Referen  EXCEPTION: Duct systems with less than 40 linear feet in	ce Residential Appendix RA3.	tinough HERS
☐ EXCEPTION: Existing duct systems constructed, insulate		
Refrigerant Charge - Split System HERS verification is required for this management of the split System HERS verification is required for this management of the split System A/C or has been split system A/C or has been split system A/C or has been split system and split system A/C or has been split system and split s	ipment is replaced (including the repeat pump, cooling or heating coil, or l per §152(b)1F.	
ne ventilation requirements of §150(o) do not apply to existing residential homes.	aw	
YES □ NO YES: In Climate Zones 10 through 15, when the existing space-correplaced, the airflow and fan watt draw shall be verified per socumentation Author's Declaration Statement  I certify that this Certificate of Compliance documentation is accurate and co	§152(b)1Ci to meet the requirement	
Signature:		
ompany:	Date:	
ddress:	If Applicable □ CE (Certification #):	A or □ CEPE
ity/State/Zip:	Phone:	
*	accept responsibility for the building	g design identified on
<ul> <li>Lesponsible Building Designer's Declaration Statement</li> <li>I am eligible under Division 3 of the California Business and Professions Code to a this Certificate of Compliance.</li> <li>I certify that the energy features and performance specifications for the building deto the requirements of Title 24, Parts 1 and 6 of the California Code of Regulations</li> <li>The building design features identified on this Certificate of Compliance are consist building design on the other applicable compliance forms, worksheets, calculations agency for approval with this building permit application.</li> </ul>	s. stent with the information provided	to document this
esponsible Building Designer's Declaration Statement  I am eligible under Division 3 of the California Business and Professions Code to a this Certificate of Compliance.  I certify that the energy features and performance specifications for the building de to the requirements of Title 24, Parts 1 and 6 of the California Code of Regulations  The building design features identified on this Certificate of Compliance are consist building design on the other applicable compliance forms, worksheets, calculations agency for approval with this building permit application.  Signature:	s. stent with the information provided	to document this
<ul> <li>esponsible Building Designer's Declaration Statement</li> <li>I am eligible under Division 3 of the California Business and Professions Code to a this Certificate of Compliance.</li> <li>I certify that the energy features and performance specifications for the building deto the requirements of Title 24, Parts 1 and 6 of the California Code of Regulations</li> <li>The building design features identified on this Certificate of Compliance are consist building design on the other applicable compliance forms, worksheets, calculations agency for approval with this building permit application.</li> </ul> Signature: Ompany:	s. stent with the information provided s, plans and specifications submitted	to document this
<ul> <li>Responsible Building Designer's Declaration Statement</li> <li>I am eligible under Division 3 of the California Business and Professions Code to a this Certificate of Compliance.</li> <li>I certify that the energy features and performance specifications for the building deto the requirements of Title 24, Parts 1 and 6 of the California Code of Regulations</li> <li>The building design features identified on this Certificate of Compliance are consist building design on the other applicable compliance forms, worksheets, calculations agency for approval with this building permit application.</li> </ul>	s. stent with the information provided s, plans and specifications submitted  Date:	to document this
esponsible Building Designer's Declaration Statement  I am eligible under Division 3 of the California Business and Professions Code to a this Certificate of Compliance.  I certify that the energy features and performance specifications for the building deto the requirements of Title 24, Parts 1 and 6 of the California Code of Regulations  The building design features identified on this Certificate of Compliance are consist building design on the other applicable compliance forms, worksheets, calculations agency for approval with this building permit application.  Signature:  ompany:	Date: License:  Phone:	to document this

<b>Mandatory Measures Summary</b>		MF-1R
Residential		(Page 1 of 3)
Site Address:	Enforcement Agency:	Date:

NOTE: Low-rise residential buildings subject to the Standards must comply with all applicable mandatory measures listed, regardless of the compliance approach used. More stringent energy measures listed on the Certificate of Compliance (CF-1R, CF-1R-ADD, or CF-1R-ALT Form) shall supersede the items marked with an asterisk (\*) below. This Mandatory Measures Summary shall be incorporated into the permit documents and the applicable features shall be considered by all parties as minimum component performance specifications whether they are shown elsewhere in the documents or in this summary. Submit all applicable sections of the MF-1R Form with plans.

### **DESCRIPTION**

#### **Building Envelope Measures:**

- §116(a)1: Doors and windows between conditioned and unconditioned spaces are manufactured to limit air leakage.
- §116(a)4: Fenestration products (except field-fabricated windows) have a label listing the certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration that meets the requirements of §10-111(a).
- §117: Exterior doors and windows are weather-stripped; all joints and penetrations are caulked and sealed.
- §118(a): Insulation specified or installed meets Standards for Insulating Material. Indicate type and include on CF-6R Form.
- §118(i): The thermal emittance and solar reflectance values of the cool roofing material meets the requirements of §118(i) when the installation of a Cool Roof is specified on the CF-1R Form.
- \*§150(a): Minimum R-19 insulation in wood-frame ceiling or equivalent U-factor.
- §150(b): Loose fill insulation shall conform with manufacturer's installed design labeled R-Value.
- \*§150(c): Minimum R-13 insulation in wood-frame wall or equivalent U-factor.
- \*§150(d): Minimum R-13 insulation in raised wood-frame floor or equivalent U-factor.
- §150(f): Air retarding wrap is tested, labeled, and installed according to ASTM E1677-95(2000) when specified on the CF-1R Form.
- §150(g): Mandatory Vapor barrier installed in Climate Zones 14 or 16.
- §150(1): Water absorption rate for slab edge insulation material alone without facings is no greater than 0.3%; water vapor permeance rate is no greater than 2.0 perm/inch and shall be protected from physical damage and UV light deterioration.

### Fireplaces, Decorative Gas Appliances and Gas Log Measures:

- §150(e)1A: Masonry or factory-built fireplaces have a closable metal or glass door covering the entire opening of the firebox.
- §150(e)1B: Masonry or factory-built fireplaces have a combustion outside air intake, which is at least six square inches in area and is equipped with a with a readily accessible, operable, and tight-fitting damper and or a combustion-air control device.
- §150(e)2: Continuous burning pilot lights and the use of indoor air for cooling a firebox jacket, when that indoor air is vented to the outside of the building, are prohibited.

### Space Conditioning, Water Heating and Plumbing System Measures:

- §110-§113: HVAC equipment, water heaters, showerheads, faucets and all other regulated appliances are certified by the Energy Commission.
- §113(c)5: Water heating recirculation loops serving multiple dwelling units and High-Rise residential occupancies meet the air release valve, backflow prevention, pump isolation valve, and recirculation loop connection requirements of §113(c)5.
- §115: Continuously burning pilot lights are prohibited for natural gas: fan-type central furnaces, household cooking appliances (appliances with an electrical supply voltage connection with pilot lights that consume less than 150 Btu/hr are exempt), and pool and spa heaters.
- §150(h): Heating and/or cooling loads are calculated in accordance with ASHRAE, SMACNA or ACCA.
- §150(i): Heating systems are equipped with thermostats that meet the setback requirements of Section 112(c).
- §150(j)1A: Storage gas water heaters rated with an Energy Factor no greater than the federal minimal standard are externally wrapped with insulation having an installed thermal resistance of R-12 or greater.
- §150(j)1B: Unfired storage tanks, such as storage tanks or backup tanks for solar water-heating system, or other indirect hot water tanks have R-12 external insulation or R-16 internal insulation where the internal insulation R-value is indicated on the exterior of the tank.
- §150(j)2: First 5 feet of hot and cold water pipes closest to water heater tank, non-recirculating systems, and entire length of recirculating sections of hot water pipes are insulated per Standards Table 150-B.
- §150(j)2: Cooling system piping (suction, chilled water, or brine lines),and piping insulated between heating source and indirect hot water tank shall be insulated to Table 150-B and Equation 150-A.
- §150(j)2: Pipe insulation for steam hydronic heating systems or hot water systems >15 psi, meets the requirements of Standards Table 123-A.
- §150(j)3A: Insulation is protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind.
- §150(j)3A: Insulation for chilled water piping and refrigerant suction lines includes a vapor retardant or is enclosed entirely in conditioned space.

<b>Mandatory Measures Summary</b>		MF-1R
Residential		(Page 2 of 3)
Site Address:	Enforcement Agency:	Date:

§150(j)4: Solar water-heating systems and/or collectors are certified by the Solar Rating and Certification Corporation.

#### **Ducts and Fans Measures:**

- §150(m)1: All air-distribution system ducts and plenums installed, are sealed and insulated to meet the requirements of CMC Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air and return-air ducts and plenums are insulated to a minimum installed level of R-4.2 or enclosed entirely in conditioned space. Openings shall be sealed with mastic, tape or other duct-closure system that meets the applicable requirements of UL 181, UL 181A, or UL 181B or aerosol sealant that meets the requirements of UL 723. If mastic or tape is used to seal openings greater than 1/4 inch, the combination of mastic and either mesh or tape shall be used
- §150(m)1: Building cavities, support platforms for air handlers, and plenums defined or constructed with materials other than sealed sheet metal, duct board or flexible duct shall not be used for conveying conditioned air. Building cavities and support platforms may contain ducts.

  Ducts installed in cavities and support platforms shall not be compressed to cause reductions in the cross-sectional area of the ducts.
- §150(m)2D: Joints and seams of duct systems and their components shall not be sealed with cloth back rubber adhesive duct tapes unless such tape is used in combination with mastic and draw bands.
- §150(m)7: Exhaust fan systems have back draft or automatic dampers.
- §150(m)8: Gravity ventilating systems serving conditioned space have either automatic or readily accessible, manually operated dampers.
- §150(m)9: Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Cellular foam insulation shall be protected as above or painted with a coating that is water retardant and provides shielding from solar radiation that can cause degradation of the material.
- §150(m)10: Flexible ducts cannot have porous inner cores.
- §150(o): All dwelling units shall meet the requirements of ANSI/ASHRAE Standard 62.2-2007 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings. Window operation is not a permissible method of providing the Whole Building Ventilation required in Section 4 of that Standard.

### **Pool and Spa Heating Systems and Equipment Measures:**

- §114(a): Any pool or spa heating system shall be certified to have: a thermal efficiency that complies with the Appliance Efficiency Regulations; an on-off switch mounted outside of the heater; a permanent weatherproof plate or card with operating instructions; and shall not use electric resistance heating or a pilot light.
- §114(b)1: Any pool or spa heating equipment shall be installed with at least 36" of pipe between filter and heater, or dedicated suction and return lines, or built-up connections for future solar heating
- §114(b)2: Outdoor pools or spas that have a heat pump or gas heater shall have a cover.
- §114(b)3: Pools shall have directional inlets that adequately mix the pool water, and a time switch that will allow all pumps to be set or programmed to run only during off-peak electric demand periods.
- §150(p): Residential pool systems or equipment meet the pump sizing, flow rate, piping, filters, and valve requirements of §150(p).

#### **Residential Lighting Measures:**

- §150(k)1: High efficacy luminaires or LED Light Engine with Integral Heat Sink has an efficacy that is no lower than the efficacies contained in Table 150-C and is not a low efficacy luminaire as specified by §150(k)2.
- §150(k)3: The wattage of permanently installed luminaires shall be determined as specified by §130(d).
- §150(k)4: Ballasts for fluorescent lamps rated 13 Watts or greater shall be electronic and shall have an output frequency no less than 20 kHz.
- §150(k)5: Permanently installed night lights and night lights integral to a permanently installed luminaire or exhaust fan shall contain only high efficacy lamps meeting the minimum efficacies contained in Table 150-C and shall not contain a line-voltage socket or line-voltage lamp holder; OR shall be rated to consume no more than five watts of power as determined by §130(d), and shall not contain a medium screw-base socket.
- §150(k)6: Lighting integral to exhaust fans, in rooms other than kitchens, shall meet the applicable requirements of §150(k).
- §150(k)7: All switching devices and controls shall meet the requirements of §150(k)7.
- §150(k)8: A minimum of 50 percent of the total rated wattage of permanently installed lighting in kitchens shall be high efficacy.
- EXCEPTION: Up to 50 watts for dwelling units less than or equal to 2,500 ft<sup>2</sup> or 100 watts for dwelling units larger than 2,500 ft<sup>2</sup> may be exempt from the 50% high efficacy requirement when: all low efficacy luminaires in the kitchen are controlled by a manual on occupant sensor, dimmer, energy management system (EMCS), or a multi-scene programmable control system; and all permanently installed luminaries in garages, laundry rooms, closets greater than 70 square feet, and utility rooms are high efficacy and controlled by a manual-on occupant sensor.
- §150(k)9: Permanently installed lighting that is internal to cabinets shall use no more than 20 watts of power per linear foot of illuminated cabinet
- §150(k)10: Permanently installed luminaires in bathrooms, attached and detached garages, laundry rooms, closets and utility rooms shall be high efficacy.

<b>Mandatory Measures Summary</b>		MF-1R
Residential		(Page 3 of 3)
Site Address:	Enforcement Agency:	Date:

- EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by a manual-on occupant sensor certified to comply with the applicable requirements of §119.
- EXCEPTION 2: Permanently installed low efficacy luminaires in closets less than 70 square feet are not required to be controlled by a manual-on occupant sensor.
- §150(k)11: Permanently installed luminaires located in rooms or areas other than in kitchens, bathrooms, garages, laundry rooms, closets, and utility rooms shall be high efficacy luimnaires.
  - EXCEPTION 1: Permanently installed low efficacy luminaires shall be allowed provided they are controlled by either a dimmer switch that complies with the applicable requirements of §119, or by a manual-on occupant sensor that complies with the applicable requirements of §119.
  - EXCEPTION 2: Lighting in detached storage building less than 1000 square feet located on a residential site is not required to comply with §150(k)11.
- §150(k)12: Luminaires recessed into insulated ceilings shall be listed for zero clearance insulation contact (IC) by Underwriters Laboratories or other nationally recognized testing/rating laboratory; and have a label that certifies the lumiunaire is airtight with air leakage less then 2.0 CFM at 75 Pascals when tested in accordance with ASTM E283; and be sealed with a gasket or caulk between the luminaire housing and ceiling.
- §150(k)13: Luminaires providing outdoor lighting, including lighting for private patios in low-rise residential buildings with four or more dwelling units, entrances, balconies, and porches, which are permanently mounted to a residential building or to other buildings on the same lot shall be high efficacy.
  - EXCEPTION 1: Permanently installed outdoor low efficacy luminaires shall be allowed provided that they are controlled by a manual on/off switch, a motion sensor not having an override or bypass switch that disables the motion sensor, and one of the following controls: a photocontrol not having an override or bypass switch that disables the photocontrol; OR an astronomical time clock not having an override or bypass switch that disables the astronomical time clock; OR an energy management control system (EMCS) not having an override or bypass switch that allows the luminaire to be always on
  - EXCEPTION 2: Outdoor luminaires used to comply with Exception1 to §150(k)13 may be controlled by a temporary override switch which bypasses the motion sensing function provided that the motion sensor is automatically reactivated within six hours.
  - EXCEPTION 3: Permanently installed luminaires in or around swimming pool, water features, or other location subject to Article 680 of the California Electric Code need not be high efficacy luminaires.
- §150(k)14: Internally illuminated address signs shall comply with Section 148; OR not contain a screw-base socket, and consume no more than five watts of power as determined according to §130(d).
- §150(k)15: Lighting for parking lots and carports with a total of for 8 or more vehicles per site shall comply with the applicable requirements in Sections 130, 132, 134, and 147. Lighting for parking garages for 8 or more vehicles shall comply with the applicable requirements of Sections 130, 131, 134, and 146
- §150(k)16: Permanently installed lighting in the enclosed, non-dwelling spaces of low-rise residential buildings with four or more dwelling units shall be high efficacy luminaires.
  - EXCEPTION: Permanently installed low efficacy luminaires shall be allowed provided that they are controlled by an occupant sensor(s) certified to comply with the applicable requirements of §119.

### RESIDENTIAL WORKSHEETS

<b>Thermal Mass Worksheet</b>			WS-1R
Residential			(Page 1 of 1)
Site Address:	Enforcen	nent Agency:	Date:
INTERIOR THERMAL MASS:			
Thermal Mass required for Package C in Table 151-B	shall meet or exceed the r	equired interior mass capac	city as specified below.
Choose one of the following:			
Package C (Slab Floor) 2.36 x		=	
Groun	d Floor Area-Slab Floor	Required Inter	rior Mass Capacity
Package C (Raised Floor) 0.18 x		=	
	l Floor Area-Raised Floor	Required Inter	rior Mass Capacity
interior mass surface in Reference Residential App space, enter the surface area of only one side.		Unit Interior	Interior
Description	Mass Area	Mass Capacity	Mass Capacity
	X X		
	X		=
	X X		=
	X X		=
	X		=
	X		
		Total Interior Mass Capac	eity
The total interior mass capacity must be equal to or mass requirements of Packages C.	<u> </u>		
Total Interior Mass Capacity	y Re	equired Interior Mass C	apacity

Area Weighted Average Calculation Work	WS-2R	
Residential		(Page 1 of 1)
Site Address:	Enforcement Agency:	Date:

This worksheet should be used to calculate weight-averaged U-factors or averaged SHGC values for prescriptive envelope compliance. R-values can never be area weighted; only area-weighted U-factors.

Whenever two or more types of a building feature, material, or construction assembly occur in a building, a weighted average of the different types must be calculated. Weighted averaging is simply a mathematical technique for combining different amounts of various components into a single number. Weighted averaging is frequently done when there is more than one level of floor, wall, or ceiling insulation in a building, or more than one type of window (the SHGC values of skylights cannot be averaged per §151(f)4A).

- a. "Area" can be replaced throughout the formula by "Length" or any other unit of measure used for the value being averaged.
- b. "Value" can be replaced throughout the formula by "U-factor," "Solar Heat Gain Coefficient," or any other value that varies throughout a residence and is appropriate to weight average.

					_				_						Weighted
Item	Type 1		Type 1		Type 2		Type 2		Type 3		Type 3		Total		Average
No.	Value <sup>b</sup>		Area <sup>a</sup>		Value <sup>b</sup>		Area <sup>a</sup>		Value <sup>b</sup>		Area <sup>a</sup>		Area		Value
	[()	X		+		X		+		X	()]	÷		=	
	[()	X		+		X		+		X	()]	÷		=	
	[()	X		+		X		+		X	()]	÷		=	
	[()	X		+		X		+		X	()]	÷		Ш	
	[()	X		+		X		+		X	()]	÷		=	
	[()	X		+		X		+		X	()]	ψ.		=	
·	[()	X		+		X		+		X	()]	÷		=	
	[()	X		+		X		+		X	()]	÷		Ш	

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Registration Number:	Registration Date/Time:	HERS Provider:	
2008 Residential Compliance Forms			August 2009

Solar Heat Gain Coef	fficient Worksho	eet		WS-3R
Residential				(Page 1 of 2)
Site Address:		Enforcement Ag	ency:	Date:
Items 1 through 4 must be completed Standards), NFRC certified data, or Sconditions indicated (#1a or #1b or #3  General Information  1a. For Fenestration Products w/NFR OR  1b. For Fenestration Products without	olar Heat Gain Coefficients ). C testing and labels:	Used for Exterior Shading A	ttachments (Table S $SHGC_{fen}$	
1c. Frame Type	1d. Product Type	1e. Glazing Type	1f. Single/Doub	
metal, non-metal, metal w/thermal break  2. Skylight (Y/N) (A skylight is fenestration mounte		(visibly) tinted clear (not visibly tinted) e less than 60° from the horiz	single pane/doul	ble pane
Combined Exterior Shade  3. SHGC <sub>Exterior Shade</sub> : (If no exterior shade, assume apply to skylights where SHoone of the values from Table  4. [( × 0.2875) + 0.7 SHGC <sub>max</sub>	e standard bug screens, SI GC <sub>Exterior Shade</sub> is assumed	$HGC_{Exterior\ Shade} = 0.76 \text{ for}$ to be 1.00. If another ext  Where SHGC	erior shade is subset: $c_{max} = Larger of ($	This requirement does not
<ul> <li>Package D Target Va</li> <li>Package E Target Va</li> <li>4, 7, 11, 12, 14, and</li> </ul>	alue for Total SHGC is 0. 15, and 0.30 in Climate Z	Total SHGC may be used 40 for Climate Zones 2 th 40 for Climate Zones 2, 4 40 for Climate Zones 2, 3 Zone 13.	d directly for preserving 15 through 14 and 0 , 5, 6, 8 through 1	exiptive packages.  2.35 in Climate Zone 15 0, and 0.25 in Climate Zones
1 able 5-1: Sola		ts Used for Permanently chments for WS-3R 1,2	Installed Exterio	or Snading
<ol> <li>Exterior Shading Device<sup>3</sup></li> <li>Standard Bug Screens</li> <li>Exterior Sunscreens with Wea</li> <li>Louvered Sunscreens w/Louv</li> <li>Low Sun Angle (LSA) Louve</li> </ol>	ers as Wide as Openings	Cle	With Single Pa ar Glass & Metal 0.76 0.30 0.27 0.13	
<ul> <li>5) Vertical Roller or Shades or Formula of Poperable Awnings<sup>2</sup></li> <li>6) Roll Down Blinds or Slats</li> <li>7) None (for skylights only)</li> </ul>		arquisolette and	0.13 0.13 1.00	
Notes: 1. These values may be used on linglazing types and combined inter 2. Exterior operable awnings (canvoverhangs (use the SHGC equal Devices in the Residential completion). 3. Standard bug screens must be a coefficient listed for bug screens coefficient of any other exteriors of standard bug screens for all operformance method. 4. Reference glass for determining standard standard bug screens for all operformance method.	rior and exterior shading with as, plastic or metal), except tion) for the purposes of coliance Manual, Chapter 3. assumed for all fenestration is an area-weighted value to the glazing (see Form WS-ther glazing see Form was glazing see Form WS-ther glazing see Form WS-ther glazing see Form WS-ther glazing see Form was glaz	th glazing.  those that roll vertically down the standard mulless replaced by other that assumes that the screen to some window areas must 2R). Different shading conditions	wn and cover the en s. See Fixed Shadin exterior shading a s are only on opera be area-weighted w tions may also be m	tire window, should be treated any Devices and Exterior Shading ttachments. The solar heat gaingle windows. The solar heat gain coefficien
Registration Number: 2008 Residential Compliance Ford		tion Date/Time:	HERS	Provider:August 2009

Sola	r Heat Gain Coefficient Worksheet		WS-3R
Reside		T. C	(Page 2 of 2)
Site Ad	dress:	Enforcement Agency:	Date:
Instr	uctions for WS-3R		
	lowing explains how to calculate solar heat gain coefficients riate item on WS-3R.	on WS-3R. The number of each	h item below corresponds to t
Enter e 1a.	ither: For products with NFRC testing and labels, enter the produ	ct's labeled SHGC as #1a. SHC	$\mathrm{GC}_{\mathrm{fen}}$
OR			
	1b. Enter the default SHGC <sub>fen</sub> from Table 116-B of the S described in entries 1c, 1d, 1e, and 1f. Entries for 1c, SHGC <sub>fen</sub> .		
	If 1b is entered, then:  1c Describe the Frame Type [metal, metal w/thermal bi wood)].	reak, or non-metal (non-metal i	ncludes both vinyl and
	1d The Product Type (operable or fixed).  1e The glazing type (tinted or uncoated). Note that tint building official must be classified as "uncoated." T	s or coatings that cannot be eas	ily observed by the
	1f Single or double pane glazing.	ints must be easily visible to the	e naked eye.
2.	For skylights mounted on a roof surface, enter "Y," otherw than 60° from the horizon.	ise enter "N." A skylight is fen	estration mounted at a slope l
3.	Describe the exterior shading device in the space provided the exterior shade with 1/8" clear single pane glass and me multiple exterior shades (i.e., shade screens and awnings) u	tal framing, from Table S-1. If	a single window or skylight l
	If no exterior shade is proposed, assume standard bug scree glazing). This applies to the full area of fixed fenestration p	ens with a SHGC of 0.76 (or a Sproducts as well as operable.	SHGC or 1.00 for horizontal
1.	Calculate SHGC <sub>Shade Open</sub> using values from Items 3 and eith fenestration product and exterior device with the interior shade.		ombined SHGC of the

## *CF-6R – ENVELOPE INSTALLATION CERTIFICATES*

# INSTALLATION CERTIFICATE CF-6R-ENV-01 Envelope – Insulation; Roofing; Fenestration (Page 1 of 3) Site Address: Enforcement Agency: Permit Number:

If more than one person has responsibility for installation of the items on this certificate, each person shall prepare and sign a certificate applicable to the portion of construction for which they are responsible; alternatively, the person with chief responsibility for construction shall prepare and sign this certificate for the entire construction. All applicable Mandatory Measures with check boxes require to be checked to ensure the mandatory measures have been met.

Description of Insulation 1. RAISED FLOOR	
Material:	Brand Name:
Thickness (inches):	Thermal Resistance (R-Value):
□ §150(d): Minimum R-13 insulation in raised wood-frame flo	
2. SLAB FLOOR/PERIMETER	
Material:	Brand Name:
Thickness (inches):	Thermal Resistance (R-Value):
Perimeter Insulation Depth (inches):	
$\square$ §150(1): Water absorption rate for the insulation material algrate is no greater than 2.0 perm/inch and shall be protected from	one without facings is no greater than 0.3%; water vapor permeand physical damage and UV light deterioration.
3. EXTERIOR WALL	
a. Insulation Type (e.x. Batt, Loose Fill, Spray Foam)	a. Thermal Resistance (R-Value):
b Insulation Type (e.x. Batt, Loose Fill, Spray Foam)	b. Thermal Resistance (R-Value):
Brand:	
	Spray/Loose fill)
Spray/Loose fill) Installed Actual Thickness (inches):	Contractor's min installed weight/ft²lb
Manufacturer's installed weight per square foot to achieve $\square$ §150(c): Minimum R-13 insulation in wood-frame wall or e	
<b>Exterior Foam Sheathing (rigid Insulation)</b>	
Material:	Brand Name:
Thickness (inches):	Thermal Resistance (R-Value):
4. FOUNDATION WALL	
Material:	Brand Name:
Thickness (inches):	Thermal Resistance (R-Value):
5. CEILING	
Batt or Blanket Type:	Brand Name:
Loose Fill Type:	Thermal Resistance (R-Value):
Spray Foam Type:	· · · · · · · · · · · · · · · · · · ·
Installed Actual Thickness (inches):	Brand Name:lb
Manufacturer's installed weight per square foot to achieve	e Thermal Resistance (R-Value):
□ §150(a): Minimum R-19 insulation in wood-frame ceiling o	r equivalent U-factor.
6. ATTIC ROOF INSULATION AND/OR ATTIC R	ADIANT BARRIER
Material:	Brand Name:
Material:	Brand Name:
Thickness (inches):	Thermal Resistance (R-Value):
□ §118(a): Insulation installed meets Standards for Insulating	Material.
☐ §150(g): Mandatory Vapor barrier installed in Climate Zone	es 14 or 16.

INS	TALLA	TION CE	RTIFIC	CATE							CF-	6 <b>R</b> -	ENV-01
Env	relope – I	Insulation	; Roofir	ıg; Fen	estrati	on						(Pa	ge 2 of 3)
Site A	Address:		Enforcement Agency: Permit Number:										
Desci	rintion of R	oofing Produc	te										
	Product ID	Manufacturer	ıs		Product	Roof	Roof	Product	Initial	Solar	Aged So	olar	Thermal
N	Number <sup>1</sup>	Information	Brand/I	Model	Type	Area	Slope	Weight <sup>2</sup>	Reflec		Reflecta		Emittance
											□³		
											<b>□</b> ³		
											□³		
ww. 2. The 3. Che 4. If th dire	coolroofs.org weight in lbs eck box if the 2 ne aged reflec ectory and use	act ID Number co g/products/search per square feet of Aged Reflectance tance is not avail the equation (0. CABLE BOX BELO	t.php of the roofing is a calcula lable in the C 2+0.7(p <sub>initial</sub>	g product be tted value us Cool Roof R 1 – 0.2) to ob	eing instal sing the eq ating Cou btain a cal	led. nuation belo ncil's Rateo lculated ago	w, footnote l Product L ed value.	e 4. Directory the	n use the	e initial re	eflectan	ice vai	lue from the
		overed by building	ng integrated	l photovolta	ic panels a	and buildin	g integrated	l solar therm	al panels	are exer	npt froi	n the	above Cool
	Roof criteria.	ons that have the	rmal mass o	ver the roof	membran	e with a we	gight of at le	east 25 lb/ft <sup>2</sup>	is exem	nted fron	n the ab	ove C	Cool Roof
С	riteria.												
meet	ninimum perf	eld Applied Coati ormance require	ments listed	in §118(i)3	and Table	2 118-C. Se	lect the app	plicable coat	ing	s across t	the entii	re roo	f surface and
		nented Asphalt 1		g L	Cement-	Based Roo	f Coating	☐ Oth	er				
		el Attached to Cl label is availab		liance meth	od cannot	be used an	d another r	nethod is req	uired to	meet coi	mplianc	:e).	
EEN	ECTD ATLO	NICI AZINC											
FEN.	ESTRATIO	N/GLAZING	Product		#		Tota	l Quantity		Add. F	Exterior		Comments/
		rer/Brand Name	U-	Product	of	NFRO	of Li	ke Product	Area	Shadir	ng Dev.		cation/ Special
Item	(GROUP LI	IKE RODUCTS)	factor	SHGC <sup>1</sup>	Panes	Certified	1, 2 (6	(ptional)	ft <sup>2</sup>	or Ov	erhang		Features
1													
2													
3													
4													
5													
6													
7.													
8.													
116	-A and 116-B o	fenestration produ f the 2008 Energy icates shall not be	Efficiency Star	ndards.	-	_				default val	lues fron	n Secti	on 116, Table
□ §1	16(a)1: Doors	and windows be	etween condi	itioned and	unconditio	ned spaces	designed to	o limit air lea	akage.				
		Actual fenestration of Compliance (Fo		installed are	equivaler	t to or have	a lower U	-factor and/o	r a lowe	r SHGC	than tha	at spec	cified on
□ \$116(a)4: Fenestration products (except field-fabricated windows) have a label listing the certified U-Factor, certified Solar Heat Gain Coefficient (SHGC), and infiltration that meets the requirements of \$10-111(a)													
	□ \$117: Exterior doors and windows weather-stripped; all joints and penetrations caulked and sealed.												

INSTALLATION CERTIFICATE		CF-6R-ENV-01
<b>Envelope – Insulation; Roofing; Fenestration</b>		(Page 3 of 3)
Site Address:	Enforcement Agency:	Permit Number:

#### **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)					
Responsible Person's Name:		Responsible Person's Signature:			
CSLB License:	Date Signed:	Position With Company (Title):			

### CF-6R-ENVELOPE-HERS

INSTALLATION CERTIFICATE	C	F-6R-ENV-20-HERS
<b>Building Envelope Sealing</b>		(Page 1 of 3)
Site Address:	<b>Enforcement Agency:</b>	Permit Number:
BUILDING ENVELOPE SEALING		<u> </u>
Two methods are available to the installer for demonstrating colling a lower door diagnostic test instrument. Note: HERS be performed using the Building Envelope Leakage Test. In order measure, the dwelling must comply with the HERS verification. Checklist and Final Inspection Checklist does not insure that the verification procedure.	cklist, or 2) Building Envelope S verification of the actual env der to receive credit for the Bu requirements. Completion of t	e Leakage Diagnostic Test elope leakage is required to ilding Envelope Sealing he Rough Frame Inspection
1a. Rough Frame Inspection Checklist		
Sole Plate  ☐ Entire sole plate of the home is either Rope caulk, foam	gasket, or with caulking bead	sealed.
Top Plate	ditioned spaces sealed with foam enings are filled with foam (Insulation Contact) and AT ( d air tight at the ceiling level. king or flashing and any remain conditioned space (or to outside floor sealed and itioned space) I and unconditioned space (or to e garage, attic, or covered patient of the extension of t	Air tight) rated and a gasket All gaps into uning gaps sealed with fire- e) filled with foam or caulk.  o outside) filled with foam ofilled with foam or caulk
HERS Provider: Registration Number:	Res	istration Date:

INSTALLATION CERTIFICATE	C	F-6R-ENV-20-HERS
<b>Building Envelope Sealing</b>		(Page 2 of 3)
Site Address:	<b>Enforcement Agency:</b>	Permit Number:
1b. Final Inspection Checklist All gaps and penetrations in the drywall must be caulked or gask must be caulked or gasketed. Some examples are:	xeted. All gaps and penetratio	ns in the exterior sheathing
Ceiling Penetrations  ☐ All HVAC register boots are sealed to the drywall with ☐ All returns are sealed to the drywall ☐ All lighting fixtures are sealed to the drywall with a gas ☐ Any other penetrations to the drywall (for example fire sealing outlet box etc.) are sealed with caulk or tape ☐ Attic access door is installed with weather stripping  Wall Penetrations ☐ All electrical outlets and switches are installed and sealed	ket, caulking or tape sprinklers, whole house fans, s	surround sound speakers,
☐ Any other penetrations to the drywall or exterior walls a  General Inspections ☐ Flooring is installed ☐ Weather stripping is installed on doors and windows ☐ Exhaust fan dampers for kitchen and bath fans installed	are sealed	
	and norming	
HERS Provider: Registration Number:	. Re	eistration Date:

INSTALLATION CERTIFICATE CF-6R-ENV-20-HERS						HERS
Building Envelope Sealing (Page 3 of 3)						e 3 of 3)
Site Address: Enforcement Agency: Permit Number:						
2 Ruil	ding Envelope Leakage	Test				
2. Dun	uing Livetope Leukuge	Diagnostic Te	esting Results			
		feet per minute (cfm) at 50	pascals for the dwelling with air distantial ACM Manual Equation R3-16	tribution	registers uns	ealed.
	Building Envelope Leakage	e $CFM50_H$ as measured	using a blower door diagnostic de	evice	✓	✓
1.	Enter the blower door leakag from the CF-1R (cfm).	e target $CFM50_H$ value	e for compliance			
2.	Enter the blower door leakag from the CF-1R (cfm).	e minimum <i>CFM50<sub>H</sub></i> v	alue corresponding to 1.5 SLA			
3.	Enter the <b>measured</b> <i>CFM50</i>	walue from the blower	door test (cfm)			
4.	Č i		kage $CFM50_H$ value from row is 3 cm row 1, otherwise the test fails. check/enter Pass of		Pass	☐ Fail
5.	If measured $CFM50_H$ from ro 1.5 SLA from row 2:		imum $CFM50_H$ value correspond $SLA$ , otherwise check/enter $\geq 1.5$		< 1.5 SLA*	□ ≥1.5 SLA
DECLA  I cert  I am	6.4. Additional information al ance Manual under the topic of RATION STATEMENT ify under penalty of perjury, under	bout compliance with the Combustion and Solid- er the laws of the State of Cousiness and Professions Cousiness	California, the information provided o	n 4.6.5 o	f the Reside	ential
<ul> <li>I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.</li> </ul>						
<ul> <li>I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</li> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.</li> <li>I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives, and beginning October 1, 2010, for all low-rise residential buildings.</li> </ul>						
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)						
Responsible Person's Name: Responsible Person's Signature:						
CSLB Li	cense:	Date Signed:	Position With Company (Title):			

\_\_\_\_\_Registration Number: \_\_\_\_\_\_Registration Date: \_\_\_\_\_

HERS Provider: \_\_

INSTALLATION CERTIFICATE		CF-6R-ENV-21-HERS
<b>Quality Insulation Installation (QII) - Framing Stage Ch</b>	ecklist	(Page 1 of 2)
Site Address:	<b>Enforcement Agency:</b>	Permit Number:

# Quality Insulation Installation (QII) Framing Stage Checklist

Air barrier and preparation for insulation verification inspection must be done at framing stage before insulation is installed. If there are any "No" answers rows not filled out or signatures missing then this is not valid form and cannot be accepted by the building department or HERS rater. If spray foam is used, then an air barrier is not required and NA would be checked. QII credit not allowed if any steel framing in the building including structural framing (Hardy Frame etc).

			All gaps in the raised floor to unconditioned space or to outside larger than 1/8" filled with foam or
Yes	No	NA	caulk. (NA if SPF)
			All openings on a second floor including under a tub where the drain penetrates the floor are sealed
Yes	No	NA	
			RRIER
□ Yes	□ No	□ NA	All gaps in wall exterior sheathing to unconditioned space or to outside larger than 1/8" filled with foam or caulk. (NA if SPF)
	NO	NA D	No gaps in sheathing against the garage, attic, or covered patio. All gaps larger than 1/8" filled with
Yes	No	NA	foam or caulk. (NA if SPF)
			All gaps in Rim-joists in interior and exterior walls to the outside including holes drilled for electric
Yes	No	NA	and plumbing larger than 1/8" filled with foam or caulk. (NA if SPF)
U V			Rope caulk, foam gasket, or caulking bead around the entire sole plate of the home
Yes	No	NA	
Yes	No	NA	All gaps around the windows are caulked or foamed (stuffing with fiberglass not acceptable)
			CTION
			Attic rulers appropriate to the material installed <b>evenly</b> throughout the attic to verify depth.
Yes	No	NA	(NA if SPF or batt)
			Attic area (sqft) $\div 250 =$ minimum number of rulers installed. Must round up.
Yes	No	NA	Number of rulers actually installed(NA if SPF or batt)
□ Yes	□ No	□ NA	ALL rulers visible from attic access. (NA if SPF or batt)
			Eave vents baffles installed at all eave vents to prevent air movement under or into insulation.
Yes	No	NA	(NA if SPF)
			Area of eave vent baffle is the same or larger than the net free-ventilation area of the eave vent. (NA
Yes	No	NA	if SPF)
			BARRIER
□ Yes	□ No	□ NA	All draft stops in place to form a continuous ceiling air barrier no gaps larger than 1/8". (NA if SPF
			All drops covered with hard covers. Gaps around or in the hard cover larger than 1/8" filled with
Yes	No	NA	foam or caulk. (NA if SPF).
			All recessed light fixtures in non conditioned space are IC rated and air tight (AT)
Yes	No		The recessed fight tractics in non-conditioned space are to raised and air tight (111)
□ Yes	□ No		All recessed light fixtures are sealed with a gasket or caulk between the housing and the ceiling
			Openings around flue shafts fully sealed with solid blocking or flashing and any remaining gaps
Yes	No		sealed with fire-rated caulk or sealant.
			Piping shaft openings fully sealed and caulked
Yes	No		
□ Yes	□ No		Penetrations from wiring in interior walls, electrical boxes, fire alarms etc. sealed with caulk or sealant
			All duct chases, fireplace chases, and double walls sealed air tight at the ceiling level. All gaps into shafts large
Yes	No		than 1/8" filled with foam or caulk. Special attention paid to ducts entering shafts from ceiling.

Registration Number:	Registration Date/Time:	HERS Provider:
2008 Residential Compliance Forms		August 2009

INSTALLATION CERTIFICATE		CF-6R-ENV-21-HERS
<b>Quality Insulation Installation (QII) - Framing Stage Ch</b>	ecklist	(Page 2 of 2)
Site Address:	Enforcement Agency:	Permit Number:

✓ GA	RAGI	E /CEI	LING AIR BARRIER FOR TWO STORIES (no conditioned space over garage)
			Air barrier installed at joists in garage to house transition (between floors). No gaps larger than 1/8"
Yes	No	NA	allowed. Use of SPF satisfies the requirement to seal the gaps.
✓ GA	RAGI	E /CEI	LING AIR BARRIER FOR TWO STORIES (conditioned space over garage)
□ Yes	□ No	□ NA	If insulation is to be installed at subfloor then subfloor has no gaps over 1/8". Air barrier installed at joists in garage to house transition (between floors). Use of SPF satisfies the requirement to seal the gaps.
			If insulation is to be installed at ceiling of garage then ceiling and joists to the outside have no gaps
Yes	No	NA	over 1/8". (NA if SPF or no conditioned space over garage.)

#### **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- All rows in this document have been checked and all answers are yes or NA
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation)
  conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the
  enforcement agency.
- I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives, and beginning October 1, 2010, for all low-rise residential buildings.

Responsible Person's Name:	Responsible Person's Signature:				
CSLB License:	Date Signed:	Position With Company (Title):			

Registration Date/Time: \_\_\_\_

Registration Number: \_\_\_

HERS Provider:

INST	ALL	ATIO	N CERTIFICATE		CF-6R-ENV-22-HERS
Quali	ity Ins	sulatio	on Installation (QII) - Insulation Stage C	Checklist	(Page 1 of 3)
Site A	ddress:			Enforcement Agency:	Permit Number:
QII cre	edit not	allowed	l if any steel framing in the building including struct	tural framing (Hardy Framing etc	.). Overview – In order for
batt an	d blowr	in insu	ulation to work correctly the insulation must fill the	wall cavity and touch the air barr	
			or batt and blown in insulation must not be compres  Checklist ✓ FLOOR INSULATION	ssed and have no gaps or voids.	
			All floor joist cavity insulation installed to uniform	mly fit the cavity side-to-side and	end-to-end. (NA if floors slab
Yes	No	NA	on grade).		`
□ Yes	□ No	□ NA	Insulation in full contact with the subfloor, NO ga	aps. (NA if floors are slab on grad	de).
☐ Yes	□ No	□ NA	Insulation in contact with air barrier on all five sic	des. (ends, sides, back). NA if flo	oors are slab on grade.
□ Yes	□ No	□ NA	Batts cut to fit around wiring and plumbing, or sp	lit (delaminated). (NA if loose fi	ll, SPF, or slab on grade).
☐ Yes	□ No	□ NA	Batt insulation has continuous support. (NA if loc	ose fill, SPF, or slab on grade).	
□ Yes	□ No	□ NA	SPF (Spray Polyurethane Foam Medium Density) listed on the CF-1R and the minimum thickness sl the R-value. (NA for other forms of insulation).		
□ Yes	□ No		Insulation R-value same or greater than listed on t	the CF-1R.	
□ Yes	□ No	□ NA	SPF insulation properly adhered to avoid gaps an	d provide an air seal (NA for other	er forms of insulation)
□ Yes	□ No	□ NA	For <b>SPF</b> list the required floor cavity R-value from List tested average depth of insulation (inches)value). This is the installed R-value and must be a insulation)	X 5.8 (R-value/inch for mediu	
✓ W/A	II IN	JCTIT A	ATION		
			Standard depth cavities insulation fills cavity and	touches air barrier on all six sides	s. (NA if SPF used and meets
Yes	No	NA D	the required R-value).  All double walls and bump-outs, the insulation fill		
Yes	No	NA	insulation fills the cavity. Insulation touches all s Behind tub/shower, walls under stairs, and firepla		
Yes	No		fill the space. Cavity required to be air tight.		
Yes	No	NA	BATTS, not a single void/depression deeper than		
□ Yes	□ No	□ NA	<b>BATTS</b> , voids/depressions less than 3/4" allowed for each stud bay. (NA if loose fill or SPF).	as long as the area is not greater	than 10% of the surface area
□ Yes	□ No	□ NA	Loose Fill no gaps or voids of any depth allowed.	(NA if batts or SPF).	
□ Yes	□ No	□ NA	SPF insulation properly adhered to avoid gaps an	d provide an air seal (NA for othe	er forms of insulation)
□ Yes	□ No		Any gaps between studs or insulation larger than	1/8" must be filled with insulation	n or foam.
□ Yes	□ No		All Rim-joists to the outside insulated.		
□ Yes	□ No		Special attention must be paid to corner channels, insulated to proper R-Value.	wall intersections, and behind tu	b/shower enclosures
□ Yes	□ No	□ NA	All skylight shafts and attic kneewalls insulated w	vith minimum R-19.	
□ Yes	□ No	□ NA	Insulation in full contact with drywall or wall fini	shes of skylight shafts and attic k	neewalls.
Registr	ration N	umber:	Registration Date ompliance Forms	te/Time: H.	IERS Provider: August 2009
∠000 I	residei	mai C	ompunice roims		August 2009

INST	ALLA	TIO	N CERTIFICATE CF-6R-ENV-22-HER	S				
Quali	ty Ins	ulatio	on Installation (QII) - Insulation Stage Checklist (Page 2 of	3)				
Site Ac	dress:		Enforcement Agency: Permit Number:					
□ Yes	□ No		Wall insulation same or better than what is listed on the CF-1R.					
			SPF list the required wall cavity R-value from CF-1R, R List tested average depth of					
Yes	No	NA	insulation (inch) $\underline{\hspace{1cm}} X$ 5.8 (R-value/inch for medium density SPF) = $\underline{\hspace{1cm}} (R\text{-value})$ This is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other forms of insulation)					
□ Yes	□ No	□ NA	SPF (Spray Polyurethane Foam Medium Density) insulation the average thickness is equal to or greater than that listed on the CF-1R and the minimum thickness shall be no more than ½ inch less than the required thickness for the R-value. (NA for other forms of insulation)					
/ GT		~ ****						
✓ CE		<del>š INSU</del>	ULATION					
Yes	No		<b>BATTS</b> there must not be a single gap/void/depression deeper than 3/4". (NA if loose fill or SPF).					
□ Yes	□ No		<b>BATTS</b> voids/depressions less than 3/4" allowed as long as the area is not greater than 10% of the surface area for each stud bay. (NA if loose fill or SPF).	ı				
□ Yes	□ No	□ NA	NO gaps or voids allowed for loose fill and SPF. (NA if batts).					
□ Yes	□ No		All ceiling insulation installed to uniformly fit the cavity side-to-side and end-to-end.					
☐ Yes	□ No		Insulation in full contact with the ceiling, <b>NO</b> gaps.					
☐ Yes	□ No		Insulation in contact with air barrier on all five sides.					
☐ Yes	No No	□ NA	Batts cut to fit around wiring and plumbing, or split (delaminated). (NA for loose fill or SPF).					
□ Yes	□ No	□ NA	<b>Batts</b> taller than the trusses must expand so that they touch each other over the trusses. (NA for loose fill or SPF).					
☐ Yes	□ No	NA	SPF insulation properly adhered to avoid gaps and provide an air seal (NA for other forms of insulation)					
□ Yes	□ No	□ NA	Insulation fully fills cavity below any plywood platform or cat-walk. If SPF used then minimum 3 inches. (NA if no platforms or cat-walks)					
☐ Yes	□ No	1,112	Attic access gasketed					
			Attic access insulated with rigid foam or batt insulation using adhesive or mechanical fastener.					
Yes	No		R-value same as ceiling R-value listed on CF-1R					
□ Yes	□ No		Recessed light fixtures covered full depth with insulation. If SPF used then other forms of insulation used to cover or enclosed in a box fabricated from ½-inch plywood, 18 ga. sheet metal, 1/4-inch hard board or drywall					
□ Yes	□ No		Roof insulation same or better than what is listed on the CF-1R					
	□ No	□ NA	Loose Fill Insulation at proper depth – insulation rulers visible and indicating proper depth and R-value for					
Yes			blown in insulation. (NA for batts or SPF).  Loose Fill Insulation uniformly covers the entire ceiling (or roof) area from outside of all exterior walls. (NA					
Yes	No	NA	for batts or SPF).					
□ Yes	Loose-fill insulation meets or exceeds manufacturer's minimum weight and thickness requirements for the target R-value. Target R-value. Manufacturer's minimum required weight for the target R-value (pounds-per-square-foot). Manufacturer's minimum required thickness at time of installation. Manufacturer's minimum required							
Registr	ration N	lumbar.	Registration Date/Time: HFRS Provider:	_				

INST	ALLA	TION	CERTIFICATE		CF-6R-ENV-22-HERS			
Quali	ity Ins	ulation	Installation (QII) - Insulation Stage C	hecklist	(Page 3 of 3)			
Site A	ddress:	Permit Number:						
			SPF list the required ceiling cavity R-value from	CF-1R, R List tested	average depth of insulation			
Yes	No	NA	in X 5.8R = R this is the installed R-value other forms of insulation)	e and must be equal to or greater	than listed on CF-1R (NA for			
			SPF insulation must be covered with other forms of insulation or enclosed in a box fabricated from ½ inch					
Yes	No	NA	plywood, 18 gauge metal, ¼ inch hard board or drywall. The exterior of the box may then be insulated with					
			SPF. SPF insulation the average thickness is equal to or greater than that listed on the CF-1R and the minimum					
Yes	No	ΝA	thickness shall be no more than ½ inch less than the required thickness for the R-value. (NA for other forms of					
1 68	insulation)							
✓ GA	RAGI	E ROO	F/CEILING INSULATION FOR TWO ST	ORIES (no conditioned spa	ace over garage)			
			Insulation installed at joists against the air barrier in the garage to house transition. All wall insulation					
Yes								
✓ GA	ARAG	E ROO	F/CEILING INSULATION FOR TWO ST					
			If insulation is to be installed at subfloor then the insulation must <b>also</b> be installed at joists against the air barrier					
Yes	No	NA	in the garage to house transition. All ceiling and	wall insulation requirements ab	pove must be met. (NA if no			
			conditioned space over garage).	4 4	.1.1.1.1.1.1			
□ 			If insulation is to be installed at ceiling of garage					
Yes	No	NA	insulation requirements listed above must be met. (NA if no conditioned space over garage).					

### **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I have read the High Quality Insulation Installation Procedures (Residential Appendix, RA3.5), understand these procedures, and understand that there are additional requirements than must be met than those listed on this CF-6R.
- All rows in this document have been checked and all answers are yes or NA
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation)
  conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the
  enforcement agency.
- I understand that a HERS rater will be checking the installation and that if such checking identifies defects, I am required to take corrective action at my expense. If the installation is part of a sample group for HERS verification, and the installation fails to meet the requirements of such quality assurance checking, additional checking/testing and repair of other installations in the HERS sample group will be required at my expense. I understand that the HERS provider, and Energy Commission representatives will also be performing checks of the installation on jobs not tested by the HERS rater.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives and on October 1, 2010, for all low-rise residential buildings.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)								
,								
Responsible Person's Name:		Responsible Person's Signature:						
Responsible reison's Name.		Responsible reison's Signature.						
COT D T I	T = 01 1							
CSLB License	Date Signed:	Position With Company (Title):						
·								
			**************************************					
Registration Number:	Registration	n Date/Time:	_ HERS Provider:					

# CF-6R – LIGHTING Installation Certificates

Site Address:	INSTALLATION C	ERTIFICATE							CF-6R-LTG-01
1. Kitchen Lighting	Residential Lighting								(Page 1 of 3)
Does project include kitchen lighting?	Site Address:			Enfor	ement	Agency:	P	ermit	Number:
Does project include kitchen lighting?									
Does project include kitchen lighting?  □ Yes, complete section 1 □ No, go not o section 2  □ Yes  \$150(k)3: The wattage of permanently installed luminaires (lighting fixtures) has been determined as specified by \$130(d).  □ Yes  \$150(k)3: The wattage of permanently installed luminaires (lighting fixtures) has been determined as specified by \$130(d).  □ Yes  □ NA  Wattage has been calculated as 180 watts of low efficacy lighting per blank electrical box.  ■ Yes, complies because and plugh efficacy luminaires and plugh efficacy luminaires and plugh efficacy luminaires and emonstrated in the table below:  □ Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B.  □ No, complies with method (a) or (c).  Fill out the following table if complying with either method (b) or (c).  ■ Efficacy  Luminaire Type									
□ Yes       \$150(k)3* The wattage of permanently installed luminaires (lighting fixtures) has been determined as specified by \$130(d).         □ Yes       \$150(k)3* The wattage of permanently installed luminaire or a surface mounted celling fan? If yes, the following row must also be yes:         □ Yes       No         □ Yes       NA         □ Yes       No         □ Yes       No         □ Yes       No         □ No       Yes         □ Yes       No         □ Yes       Or         □ No       Yes         □ No       Yes         □ No       Yes         □ No       Yes         □ □ □ □   x       Yes									
□ Yes       § 150(k)3: The wattage of permanently installed luminaires (lighting fixtures) has been determined as specified by § 130(d).         □ Yes       □ No       § 150(k)3: In the kitchen, are there electrical boxes finished with a blank cover or where no electrical equipment has been installed, and where the electrical box can be used for a luminaire or a surface mounted ceiling fair? If yes, the following row must also be yes:         □ Yes       □ NA       Wattage has been calculated as 180 watts of low efficacy lighting per blank electrical box.         § 150(k)8       Kitchen Lighting must comply with either method (a), (b), or (c) below:									
□ Yes       □ No       § 150(k)3: In the kitchen, are there electrical boxes finished with a blank cover or where no electrical equipment has been installed, and where the electrical box can be used for a luminaire or a surface mounted ceiling fan? If yes, the following row must also be yes:         □ Yes       □ NA       Wattage has been calculated as 180 watts of low efficacy lighting per blank electrical box.         § 150(k)8       Kitchen Lighting must comply with either method (a), (b), or (c) below: <ul> <li>(a) All high efficacy luminaires</li> <li>□ Yes, complies because only high efficacy luminaires have been installed in the kitchen.</li> <li>□ No, complies with method (b) or (c).</li> </ul> □ Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B.         □ No, complies with method (a) or (c).         Fill out the following table if complying with either method (b) or (c).         Table (b)       Efficacy       Watts       x       Quantity       = High Efficacy Watts       or       Low Efficacy Watts         □ □ □ □ x       x       □       u       or       or         □ □ □ x       x       =       u       or         Complies with method (b) if A ≥ B       Total: A: ≥ B:       ≥ B:         (c) Additional Kitchen Low Efficacy Lighting       □ Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and				Huminaires (li	ahting f	ivtures) has he	en determ	ined as	specified by \$130(d)
installed, and where the electrical box can be used for a luminaire or a surface mounted ceiling fan? If yes, the following row must also be yes:    Yes   NA   Wattage has been calculated as 180 watts of low efficacy lighting per blank electrical box.    \$150(k)8   Kitchen Lighting must comply with either method (a), (b), or (c) below:   (a) All high efficacy luminaires   Yes, complies because only high efficacy luminaires have been installed in the kitchen.   No, complies with method (b) or (c).   (b) ≥ 50% watts used by high efficacy luminaires   Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires   as demonstrated in the table below: Total A ≥ Total B.   No, complies with method (a) or (c).   Fill out the following table if complying with either method (b) or (c).   Table (b)     Luminaire Type   High   Low   Watts   x   Quantity   = High Efficacy Watts   or   Low Efficacy Watts									
\$\[ \] \text{\$\subset{\text{Sitchen Lighting must comply with either method (a), (b), or (c) below:} \]  \[ \] \text{(a) All high efficacy luminaires} \]  \[ \] \text{Yes, complies because only high efficacy luminaires have been installed in the kitchen.} \]  \[ \] \text{No, complies with method (b) or (c).} \]  \[ \] \text{(b) ≥ 50% watts used by high efficacy luminaires} \]  \[ \] \text{Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B.} \]  \[ \] \text{No, complies with method (a) or (c).} \]  Fill out the following table if complying with either method (b) or (c).} \]  \[ \] \text{Table (b)} \]  \[ \] \text{Luminaire Type}  \text{High Low}  \text{Watts}  \text{x}  \text{Quantity} =  \text{High Efficacy Watts}  \text{or}  \text{Low Efficacy Watts} \]  \[ \]  \qquad   \qquad            \qu	installed, and where the el	lectrical box can be use	ed for a luminaire o	or a surface mo	unted c	eiling fan? If y	es, the foll		
(a) All high efficacy luminaires  □ Yes, complies because only high efficacy luminaires have been installed in the kitchen. □ No, complies with method (b) or (c).  (b) ≥ 50% watts used by high efficacy luminaires  □ Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B. □ No, complies with method (a) or (c).  Fill out the following table if complying with either method (b) or (c).  Table (b)  □ Efficacy High Low Watts x Quantity = High Efficacy Watts or Low Efficacy Watts □ □ □ x x = □ or □ □ x = □ or □ v =	☐ Yes ☐ NA Watta	ge has been calculated	as 180 watts of lov	w efficacy ligh	ing per	blank electric	al box.		
(a) All high efficacy luminaires  □ Yes, complies because only high efficacy luminaires have been installed in the kitchen. □ No, complies with method (b) or (c).  (b) ≥ 50% watts used by high efficacy luminaires  □ Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B. □ No, complies with method (a) or (c).  Fill out the following table if complying with either method (b) or (c).  Table (b)  □ Efficacy High Low Watts x Quantity = High Efficacy Watts or Low Efficacy Watts □ □ □ x x = □ or □ □ x = □ or □ v =	0450/1\0 171/1 1	• 1 .•	1	41 17	<i>a</i> >	( ) 1 1			
□ Yes, complies because only high efficacy luminaires have been installed in the kitchen.         □ No, complies with method (b) or (c).         (b) ≥ 50% watts used by high efficacy luminaires         □ Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B.         □ No, complies with method (a) or (c).         Fill out the following table if complying with either method (b) or (c).         Table (b)         □ □ □   x   Quantity   = High Efficacy Watts   or   Low Efficacy Watts   or   Low Efficacy Watts   or   Cow Eff	• ,	0 0	ply with either	method (a	, (b),	or (c) belov	v:		
No, complies with method (b) or (c).  (b) ≥ 50% watts used by high efficacy luminaires    Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B.    No, complies with method (a) or (c).    Fill out the following table if complying with either method (b) or (c).    Table (b)	` ' '	•							
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Yes, complies because at least 50% of the installed watts are from permanently installed high efficacy luminaires as demonstrated in the table below: Total A ≥ Total B.   No, complies with method (a) or (c).   Fill out the following table if complying with either method (b) or (c).  Table (b)  Luminaire Type High Low Watts x Quantity = High Efficacy Watts or Low Efficacy Watts  Luminaire Type High Low Watts x Quantity = Or Low Efficacy Watts  Luminaire Type High Low Watts x Quantity = Or Low Efficacy Watts  Luminaire Type High Low Watts x Quantity = Or Low Efficacy Watts  Luminaire Type High Low Watts x Quantity = Or Low Efficacy Watts  Luminaire Type High Low Watts x Quantity = Or Low Efficacy Watts  Luminaire Type High Low Watts x Quantity = Or Low Efficacy Watts  Torial X = Or Low Efficacy Watts  Complies with method (b) if A ≥ B Total: A: ≥ B:  (c) Additional Kitchen Low Efficacy Lighting  Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B  No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true:  Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor Dimmer energy management control system (EMCS) or a multi-seene programmable control system.  Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy									
as demonstrated in the table below: Total A ≥ Total B.  No, complies with method (a) or (c).  Fill out the following table if complying with either method (b) or (c).  Table (b)  Luminaire Type	` '	• •	•						
□ No, complies with method (a) or (c).  Fill out the following table if complying with either method (b) or (c).  Table (b)  Luminaire Type				m permanentl	install	ed high efficac	ey luminair	es	
Fill out the following table if complying with either method (b) or (c).  Table (b)    Efficacy			otal B.						
Table (b)    Luminaire Type	ino, complies with met	.iiou (a) oi (c).							
Table (b)    Luminaire Type	Fill out the following table	e if complying with eit	ther method (b) or (	c).					
Luminaire Type   High Low   Watts   x   Quantity   =   High Efficacy Watts   or   Low Efficacy Watts	_	, , ,							
		Efficacy							
	Luminaire Type	High Low	Watts	x Quantity	=	High Effica	cy Watts	or	Low Efficacy Watts
				x	=			or	
					+=+			or	
Complies with method (b) if A ≥ B				X				Oi	
Complies with method (b) if A ≥ B  Complies with method (b) if A ≥ B  Total: A: ≥ B:  (c) Additional Kitchen Low Efficacy Lighting  Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B  No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true:  Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor  Dimmer energy management control system (EMCS) or a multi-scene programmable control system.  Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy				x	=			or	
Complies with method (b) if A ≥ B  Complies with method (b) if A ≥ B  Total: A: ≥ B:  (c) Additional Kitchen Low Efficacy Lighting  Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B  No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true:  Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor Dimmer energy management control system (EMCS) or a multi-scene programmable control system.  Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy		пп			=			or	
Complies with method (b) if A ≥ B  Total: A: ≥ B:  (c) Additional Kitchen Low Efficacy Lighting  □ Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B  □ No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true:  □ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor Dimmer energy management control system (EMCS) or a multi-scene programmable control system.  □ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy				X				01	
(c) Additional Kitchen Low Efficacy Lighting  □ Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B  □ No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true: □ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor Dimmer energy management control system (EMCS) or a multi-scene programmable control system. □ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy				X	=			or	
(c) Additional Kitchen Low Efficacy Lighting  □ Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B  □ No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true: □ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor Dimmer energy management control system (EMCS) or a multi-scene programmable control system. □ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy	Complies with method	(b) if $\Lambda > R$		Total	۸.			>	p.
<ul> <li>Yes, complies because the kitchen lighting qualifies for additional low efficacy lighting and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B</li> <li>No, complies with method (a) or (b).</li> <li>Additional kitchen low efficacy lighting is available only if all of the following are true:</li> <li>Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor</li> <li>Dimmer energy management control system (EMCS) or a multi-scene programmable control system.</li> <li>Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy</li> </ul>	• **								
and as demonstrated in table in (b) (above) and the table in (c) (below) that (A + C) ≥ B  □ No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true:  □ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor  Dimmer energy management control system (EMCS) or a multi-scene programmable control system.  □ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy	(c) Additional K	itchen Low Effica	acy Lighting						
□ No, complies with method (a) or (b).  Additional kitchen low efficacy lighting is available only if all of the following are true:  □ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor  Dimmer energy management control system (EMCS) or a multi-scene programmable control system.  □ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy						ng			
Additional kitchen low efficacy lighting is available only if all of the following are true:  ☐ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor  Dimmer energy management control system (EMCS) or a multi-scene programmable control system.  ☐ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy			the table in (c) (belo	(A +	$C) \ge B$				
<ul> <li>☐ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor</li> <li>☐ Dimmer energy management control system (EMCS) or a multi-scene programmable control system.</li> <li>☐ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy</li> </ul>	☐ No, complies with met	thod (a) or (b).							
<ul> <li>☐ Yes. All low efficacy luminaires in the kitchen are controlled by a vacancy sensor</li> <li>☐ Dimmer energy management control system (EMCS) or a multi-scene programmable control system.</li> <li>☐ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy</li> </ul>	A ddition	al kitahan law af	fice ev lighting i	is availabla	anly i	fall of the	fallowin	T 0110	tm.o.
Dimmer energy management control system (EMCS) or a multi-scene programmable control system.  □ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy						i ali oi tile	IOHOWIH	gare	true:
☐ Yes. Permanently installed luminaires in garages laundry rooms closets greater than 70 square feet and utility rooms are high efficacy						trol system.			
luminaires AND are controlled by a vacancy sensor.	☐ Yes. Permanently inst	talled luminaires in gar	ages laundry rooms				and utility	rooms	are high efficacy
	luminaires AND are controlled by a vacancy sensor.								
	77. 1.1. ( )								
Table (c)	1 abie (c)		II 70 W 0	4111	- 2 2 5	00.02			
Use 50 W for dwelling units $\leq 2,500 \text{ ft}^2$ Use 50 W for dwelling units $\geq 2,500 \text{ ft}^2$ Ver(No. 2)	E 4h - T-1	hlo in (h)					L L A		Var/Na 9
From the Table in (b) Use 100 W for dwelling units $> 2,500 \text{ ft}^2$ Add Yes/No?  A B C A + C Is $(A+C) \ge B$ ?		· /	Use 100 W for		$s \ge 2,5$	000 It			
A B C $A+C$ Is $(A+C) \ge B$ ?	A	В		C			A + C		IS (A+C) ≥ B !
2. Lighting Internal to Cabinets									
Does project includes lighting internal to cabinets?									

 $\square$  Yes, §150(k)9: Permanently installed lighting internal to cabinets uses  $\le 20$  watts of power per linear foot of illuminated cabinet.

INSTALLATI	ION CERTIFICATE		CF-6R-LTG-01
Residential Li			(Page 2 of 3)
Site Address:		Enforcement Agency:	Permit Number:
	evices and Components Have Been Certifie		
Does the project in	nclude any of the devices or components listed below?	$\square$ Yes, complete section 3 $\square$ No,	go on to section 4
	7(F): Any of the following devices and components wh	nich have been installed have been cer	tified to the Energy Commission
according to the a	oplicable provisions of §119: All LED lighting systems	that are classified as high efficacy, ba	allasts used in recessed luminaires,
vacancy sensors (a	automatic off/manual on occupant sensors), dimmers, tr	rack lighting integral current limiters,	and outdoor motion sensors.
4. Lighting Co	ontrols Complete section 4		
☐ Yes ☐ NA	§150(k)7A: Permanently installed low efficacy lumin	aires are controlled by switches separ	rate from those controlling high
	efficacy luminaires.		
☐ Yes ☐ NA	§150(k)7B: Exhaust fans with integral lighting system system that can be manually turned on and off while		
☐ Yes ☐ NA	§150(k)7C: All permanently installed luminaires are manually switched on and off.	switched with readily accessible conti	rols that permit the luminaires to be
☐ Yes ☐ NA	§150(k)7D: All lighting controls have been installed	in accordance with the manufacturer's	s instructions.
☐ Yes ☐ NA	§150(k)7E: All lighting circuits that are controlled by		
	installed to comply with §150(k), no controls bypass	the dimmer or vacancy sensor function	ons.
5 Luminaires	(Lighting Fixtures)		
	include the installation of any luminaires (indoor or outc	loor)?	
	section 5  No, go on to section 6		
☐ Yes, high effica	acy luminaire classification has been determined accord	ling to §150(k)1, and low efficacy lun	ninaire classification has been
	determined according to §150(k)2.		
☐ Yes ☐ NA	§150(k)4: Fluorescent lamps rated 13 watts or greater kHz.	r have an electronic ballasts having an	output frequency no less than 20
☐ Yes ☐ NA	§150(k)5: Permanently installed night lights, and night		
	contain only high efficacy lamps meeting the minimus socket or line voltage lamp holder, OR the night light		
	a medium screw-base socket.	is face to consume no more than 5 v	vatis of power and does not contain
☐ Yes ☐ NA	§150(k)6: Lighting integral to exhaust fans, in rooms	s other than kitchens, meet the applica	able requirements of §150(k).
☐ Yes ☐ NA	Any electrical box finished with a blank cover or who	ere no electrical equipment has been i	nstalled, and where the electrical
	box can be used for a luminaire or a surface mounted	ceiling fan, has been treated as low e	fficacy luminaires for compliance
	with §150(k).		
	project include any luminaires that are reco	essed into insulated ceilings?	
	the rest of section 5  No, go on to section 6		
	2: Luminaires that are recessed into insulated ceilings i		
	are listed, as defined in §101, for zero clearance insula ratory, and	tion contact (IC) by UL or other natio	nally recognized testing/rating
	have labels that certify the luminaires are airtight with	air leakage less than 2.0 CFM at 75.D	ascals when tested in accordance
	ASTM E283 (Exhaust fan housings are not required to	•	ascais when tested in accordance
	are sealed with a gasket or caulk between luminaire ho		paths between conditioned and
	onditioned spaces have been sealed with a gasket or cau		
	allows ballast maintenance and replacement to be read iring the cutting of holes in the ceiling.	ily accessible to building occupants fr	rom below the ceiling without
	nting (any indoor room that is not a kitchen nelude permanently installed luminaires in any room the		
☐ Yes, complete s		at 15 HOL & KILCHEH!	
☐ Yes ☐ NA	\$150(k)10: Permanently installed luminaires in bathr	ooms, garages, laundry rooms, closets	$s > 70 \text{ ft}^2$ and utility rooms are high
_ 105 _ 101	efficacy luminaires OR are controlled by a vacancy s		, o it , and army rooms are night
□ Yes □ NA	§150(k)11: Permanently installed luminaires located i		ns, bathrooms, garages, laundry
	rooms, closets, and utility rooms are high efficacy lun	minaires, OR are controlled by a dimn	ner switch OR are controlled by
	a vacancy sensor.		

	TION CERTIFICATE		CF-6R-LTG-01
Residential I	ighting		(Page 3 of 3)
Site Address:		Enforcement Agency:	Permit Number:
7. Outdoor L Does the project	<b>ighting</b> include any permanently installed outdoor lighting?		
	e section 7 \( \subseteq \text{No, go on to section 8} \)		
☐ Yes ☐ NA	§150(k)13: Luminaires providing outdoor lighting, in with four or more dwelling units, entrances, balconies building or to other buildings on the same lot are high motion sensor not having an override or bypass switch additional control methods:	s, and porches, and which are permanent efficacy luminaires OR are controlled	ntly mounted to a residential by a manual on/off switch, plus a
	a. A photocontrol that does not have an	override or bypass switch that disables	s the photocontrol; or
	b. An astronomical time clock not having or	g an override or bypass switch that dis	sables the astronomical time clock;
	c. Energy management controls system luminaire to be always on.	s (EMCS) not having an override or by	ypass switch that allows the
□ Yes □ NA	<b>Exception 2</b> : Low efficacy outdoor luminaires used switch which temporarily bypasses the motion sensing hours. The luminaire is controlled by a photocontrol, §150(k)13.	g function, and the motion sensor is au	tomatically reactivated within six
□ Yes □ NA	<b>Exception 3</b> : There are permanently installed lumina subject to Article 680 of the California Electric Code		
□ Yes □ NA	§150(k)14: Internally illuminated address signs comp more than 5 watts of power as determined according to		ew-base socket and consume no
□ Yes □ NA	§150(k)15 Lighting for parking lots and carports with §130,132, 134, and 147. Lighting for parking garages If yes, the Nonresidential compliance forms must be s	s for 8 or more vehicles comply with §	
	areas of low-rise residential buildings include the installation of any luminaires in common ar	eas of low-rise residential buildings?	
☐ Yes, complete	e section 8  No, go on to section 9		
	16: Permanently installed lighting in the enclosed, non- g units shall be high efficacy luminaires OR are controll		
	N STATEMENT or penalty of perjury, under the laws of the State of Calif	fornia, the information provided on this	s form is true and correct
I am eligible	under Division 3 of the Business and Professions Code responsible for construction (responsible person).	•	
I certify that	the installed features, materials, components, or manufable codes and regulations, and the installation is consist		
<ul><li>requirements</li><li>I will ensure permit(s) iss</li></ul>	copy of the Certificate of Compliance (CF-1R) form ap for the installation. I certify that the requirements deta that a completed, signed copy of this Installation Ce ued for the building, and made available to the enfor of this Installation Certificate is required to be inclu- cupancy.	iled on the CF-1R that apply to the instriction of the critificate shall be posted, or made avercement agency for all applicable instructions.	tallation have been met.  ailable with the building  pections. I understand that a
Company Nama	(Installing Subcontractor or General Contractor or Bui	ildar/Orrman)	

Responsible Person's Signature:

Position With Company (Title):

Date Signed:

Responsible Person's Name:

CSLB License:

# CF-6R – MECHANICAL Installation Certificates

INSTALLATION CERTIFICATE CF-6R-MECH-01								
	tic Hot Water (DHW)		1		A	ъ	, ,	ge 1 of 2)
Site Add	lress:		Er	ıforcement	Agency:	Perm	it Number:	
l. WAT	ER HEATING SYSTEMS:		•			•		
Heater Type	CEC Certified Mfr Name & Model Number	Distribution Type (Std, Point-of- Use, etc)	If Recirculation, Control Type	# of Identical Systems	Rated Input (kW or Btu/hr) <sup>1</sup>	Tank Volume (gallons)	Efficiency (EF, RE) <sup>1</sup>	Standby Loss (%) <sup>1</sup>
Energy F	For <b>small gas storage</b> (rated input le Factor (EF). For <b>large gas storage w</b> Efficiency, Standby Loss and Rated	v <b>ater heaters</b> (rate	ed input of grea	ter than 75,	000 Btu/hr), i	ist Recover	y Efficiency (	RE),
2. Ma	ndatory Measures							
_	MPLY - ALL BOXES MUST 0-§113: Water heaters, showerher			y the Califo	ornia Energy	/ Commiss	sion.	
§150(j):	Water System Pipe and Tank In Storage tank insulation	sulation. And C	ooling Line Ir	sulation				
	A. Storage gas water heate externally wrapped with in							d are
	B. Unfired storage tanks or insulation where the intern						r R-16 inter	nal
2.	Water piping and cooling syste	m line insulation	thickness and	d conducti	vity			
	First 5 feet of hot and col- length of recirculating sec							ntire
	length of recirculating sections of hot water pipes are insulated per Standards Table 150-B; and  Pipe insulation for steam hydronic heating systems or hot water systems >15 psi, meets the requirements of Standards Table 123-A.							
	Insulation is protected frowind.	m damage, incl	ıding that due	to sunligh	t, moisture,	equipmen	t maintenan	ce, and
	1(f)8D: If indicated on the CF-1 insulated per Standards Table 15		piping that rur	ns from the	hot water s	ource to th	ne kitchen fi	xtures is

INSTALLATION CERTIFICATE CF-6						
Dome	estic Hot Water (DHW)		(Page 2 of 2)			
Site Ad	ldress:	Enforcement Agency:	Permit Number:			
3. Central Water Heating in Buildings with Multiple Dwelling Units (required for prescriptive)  TO COMPLY - ALL BOXES MUST BE CHECKED						
All hot water piping in main circulating loop is insulated to requirements of §150(j)						
	Central hot water systems serving six or fewer dwelling units which have (1) less than 25' of distribution piping outdoors; (2) zero distribution piping underground; (3) no recirculation pump; and (4) insulation on distribution piping that meets the requirements of Section 150(j)					
	Central hot water systems serving more than 6 dwelling u time/temperature control	nits - presence of either a time	e control or a			

## **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation)
  conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the
  enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)			
Responsible Person's Name:		Responsible Person's Signature:	
CSLB License:	Date Signed:	Position With Company (Title):	

INSTALLATION CERTIFICATE					(	CF-6R-MECH-02
Solar Domestic Hot Water Systems (SDHW)	)					(Page 1 of 1)
Site Address:		Enfor	cement Agency	:	Permit	Number:
SOLAR HOT WATER HEATING SYST	ΓEMS:					
	Net Solar F	Fraction	# of			
	(from atta	ached	Collectors in			Solar Tank Volume
SRCC Certified Mfr Name & Model Number	CEC F-C	Chart)	System	Collec	tor Size	(gallons)
☐ §150(j)1B: Backup storage tanks for solar water					ion or R-	-16 internal
insulation where the internal insulation R-value	indicated on	the exter	rior of the tank			
$\square$ §150(j)2A: All solar piping shall be insulated.						
■ §150(j)4: Solar water-heating system and/or/co	ollectors are	certified	by the Solar Ra	ating an	d Certific	cation Corporation.
□ Solar water-heating systems storage is no less			-	_		_
☐ Solar water-heating systems shall be installed a						,
		•				.11
A solar water-heating system is installed at an or within 45 degrees of two south	orientation e	equal to va	arue usea in the	e attacne	ea soiar c	calculation sneet, or
within 45 degrees of true south.						
DECLARATION STATEMENT						
I certify under penalty of perjury, under the laws of th	e State of Cal	lifornia, the	e information pro	ovided or	n this forn	n is true and correct.
I am eligible under Division 3 of the Business and Pro	ofessions Code	e to accept	responsibility for	or constr	uction, or	an authorized
representative of the person responsible for construction	on (responsib	le person).				
I certify that the installed features, materials, component						
conforms to all applicable codes and regulations, and enforcement agency.	the installation	n is consis	tent with the pla	ns and sp	pecification	ons approved by the
I reviewed a copy of the Certificate of Compliance (C	E 1D) form a	nnroyed by	the enforcemen	nt ngangs	that idan	tifies the specific
requirements for the installation. I certify that the req						
• I will ensure that a completed, signed copy of this I	Installation C	Certificate	shall be posted	or mad	e availab	le with the building
permit(s) issued for the building, and made availab						
that a signed copy of this Installation Certificate is the building owner at occupancy.	required to b	pe include	a with the docu	mentati	on the bu	maer provides to
Company Name: (Installing Subcontractor or General Co	ntractor or Ri	uilder/Ow	ner)			
Company Traine. (Instanting Subcontractor of General Co	manucioi oi Di	ander/OWI	101)			
Responsible Person's Name:		Responsib	le Person's Sign	ature:		
		ponore				

CSLB License:

Date Signed:

Position With Company (Title):

INSTALLATION CERTIFICATE		CF-6R-MECH-03
Pool And Spa Heating Systems		(Page 1 of 2)
Site Address:	Enforcement Agency:	Permit Number:

# **Pool and Spa Heating Systems requirements**

8	114	a	):	S	ystems	and	Eq	ıui	pmen	t.
---	-----	---	----	---	--------	-----	----	-----	------	----

- □ 1. Heater has a thermal efficiency that complies with the Appliance Efficiency Regulations.
- ☐ 2. Has a readily accessible on-off switch mounted outside of the heater.
- □ 3. Weatherproof plate or card containing operating instructions for the pool or spa heater.
- □ 4. No electric resistance heating except for listed package units that has fully insulated enclosures and tight fitting covers that are insulated to at least R-6. Or if documentation is provided that at least 60 % of the annual heating energy is from site solar energy or recovered energy.
- □ 5. Heating system has no pilot light.

### §114(b): Installation.

- 1. System is installed with at least 36" of pipe between the filter and heater, or dedicated suction and return lines, or built-in or built-up connections for future solar heating.
- □ 2. A cover for outdoor pools or spas that have a heat pump or gas heater.
- □ 3. Pool system has directional inlets to adequately mix the pool water
- □ 4. Time switch which will allow the pump to be set or programmed to run during off-peak periods only

# §150(p) Pump Sizing and flow rate specification

- ☐ 1. The pump specified is listed in the CEC database of certified pool pumps.
- $\square$  2. The pump flow rate shall be calculated based on pool sizing table below.
- □ 3. The pump is capable of operating at 2 or more speeds (not applicable if pump is less than 1 horsepower).
- ☐ 4. Each auxiliary pool load is served by either a separate pump, or the system is served by a multi-speed pump.

Pool sizing (Values are based on a maximum allowable turnover rate of 6- hours)

Max Pool						
Volume	Min Pipe	D or Greater	Min Filte	r Area or	more	Max Pump
(gallons)	(ir	nches)	(squ	are feet)		Flow (gpm)
	Return	Suction	Cartridge	Sand	DE	
13,000	1.5	1.5	100	2.4	20	36
17,000	1.5	2	130	3.1	25	47
21,000	2	2	160	3.9	30	58
28,000	2	2.5	210	5.2	40	78
42,000	2.5	3	320	7.8	60	117
48,000	3	3	360	8.9	70	133

Note: For pumps greater than 1 hp. The maximum Pump Flow is the lowest speed default filtration

Ш	5. Calculated volume of pool	_ (gallons).
	6. Return Pipe Diameter	_ (inches).
	7. Suction Pipe Diameter	_(inches).
	8. Filter Type	(Cartridge, Sand, DE).
	9. Filter Surface Area	(sf).
	10. Max Pump Flow	(gpm).

INSTALLATION CERTIFICATE		CF-6R-MECH-03
Pool And Spa Heating Systems		(Page 2 of 2)
Site Address:	Enforcement Agency:	Permit Number:

# **System Piping**

- □ 1. The suction side pipe is straight for at least 4 pipe diameters before entering the pump (See table below for the required straight run lengths for various pipe sizes).
- ☐ 2. The design uses low pressure drop fittings (sweep90's)

Pipe Diameter	Required Pipe Length
(inch)	leading into pump (inch)
1.5	6
2	8
2.5	10
3	12

# **Filtration Equipment**

1.	If a backwash valve is used:	The diameter of the backwash multi-port valve is 2 inches or as large as the
	circulation pipe, whichever is	greater

## **DECLARATION STATEMENT**

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- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation)
  conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the
  enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)					
Responsible Person's Name:		Responsible Person's Signature:			
CSLB License:	Date Signed:	Position With Company (Title):			

	ATION CERTIFICAT							MECH-04
	ditioning Systems, Duc	ts and Fans					,	age 1 of 2
Site Address	:			Enforcement Agency:			Permit Number:	
Space Co	nditioning Systems							
Heating Equ	uipment							
Equip Type (package- heat pump)	CEC Certified Mfr. Name and Model Number	ARI Reference Number <sup>2</sup>	# of Identical Systems	Efficiency (AFUE, etc.) <sup>1,3</sup> (≥CF-1R value) <sup>4</sup>	Duct Location (attic, crawl- space, etc.)	Duct R-valu		Heating Capacity (Btu/hr)
Cooling Equ	uipment							
Equip Type (package heat pump)	CEC Certified Mfr. Name and Model Number	ARI Reference Number <sup>2</sup>	# of Identical Systems	Efficiency (SEER and EER) 1,3 (≥CF-1R value) <sup>4</sup>	Duct Location (attic, crawl- space, etc.)	Duct R-valu		Cooling Capacity (Btu/hr)
	is new construction, see Fo	otnotes to Stand	ards Table	151-B and 2	Table 151-0	C for du	act ceiling alter	native
3. Listed effic	ence Number can be found l ciency on this page must be -1R is reference it is also ap	greater than or e	equal (≥) t	o the value s	hown on th			ri/ac.php#
\$110-\\$1 \$150(h): \$150(i):	XES MUST BE CHEO 13: HVAC equipment is ce Heating and/or cooling loa Setback Thermostat on all 2: Pipe insulation for coolin	rtified by the Ca ads calculated in applicable heatin	lifornia En accordance ng and/or c	ergy Commine with ASHI ooling system	ssion. RAE, SMA ms meet the	e requir	ements of §112	

INSTALLATION CERTIFICATE		CF-6R-MECH-04
Space Conditioning Systems, Ducts and Fans		(Page 2 of 2)
Site Address:	Enforcement Agency:	Permit Number:
<b>Ducts and Fans</b>		
\$150(m): Duct and Fans  1. All air-distribution system ducts and plenums installed Sections 601, 602, 603, 604, 605 and Standard 6-5; supply-air minimum installed level of R-4.2 or enclosed entirely in condi or other duct-closure system that meets the applicable requirer sealant that meets the requirements of UL 723. If mastic or ta combination of mastic and either mesh or tape shall be used; a land 1. Building cavities, support platforms for air handlers, at than sealed sheet metal, duct board or flexible duct shall not be and support platforms may contain ducts. Ducts installed in cacuse reductions in the cross-sectional area of the ducts.  2D. Joints and seams of duct systems and their componer duct tapes unless such tape is used in combination with mastic 7. Exhaust fan systems have back draft or automatic damy 8. Gravity ventilating systems serving conditioned space operated dampers.  9. Protection of Insulation. Insulation shall be protected frequipment maintenance, and wind. Cellular foam insulation sh water retardant and provides shielding from solar radiation that 10. Flexible ducts cannot have porous inner cores.	and return-air ducts and plent tioned space. Openings shall ments of UL 181, UL 181A, or ape is used to seal openings grand and plenums defined or construe used for conveying condition avities and support platforms shall not be sealed with clouds and draw bands.  pers.  have either automatic or reading the protected as above or p	ums are insulated to a be sealed with mastic, tape r UL 181B or aerosol reater than 1/4 inch, the acted with materials other ned air. Building cavities shall not be compressed to oth back rubber adhesive  ly accessible, manually ue to sunlight, moisture, ainted with a coating that is
<ul> <li>DECLARATION STATEMENT</li> <li>I certify under penalty of perjury, under the laws of the State of California</li> <li>I am eligible under Division 3 of the Business and Professions Code to representative of the person responsible for construction (responsible of I certify that the installed features, materials, components, or manufaction.</li> </ul>	o accept responsibility for constru person). tured devices identified on this co	uction, or an authorized ertificate (the installation)
conforms to all applicable codes and regulations, and the installation i enforcement agency.	s consistent with the plans and sp	pecifications approved by the
<ul> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form apprequirements for the installation. I certify that the requirements detail</li> <li>I will ensure that a completed, signed copy of this Installation Cerpermit(s) issued for the building, and made available to the enforce that a signed copy of this Installation Certificate is required to be the building owner at occupancy.</li> </ul>	ed on the CF-1R that apply to the tificate shall be posted, or made tement agency for all applicable included with the documentation	e installation have been met. e available with the building e inspections. I understand
Company Name: (Installing Subcontractor or General Contractor or Build	der/Owner)	
Responsible Person's Name: Re	esponsible Person's Signature:	

Position With Company (Title):

Date Signed:

CSLB License:

INSTALLATION CERTIFICATE		CF-6R-MECH-05
Indoor Air Quality and Mechanical Ventilation		(Page 1 of 5)
Site Address:	<b>Enforcement Agency:</b>	Permit Number:

Ventilation for Indoor Air Quality (IAQ): All dwelling units shall meet the requirements of ANSI/ASHRAE standard 62.2. Ref: Title 24 Part 6 Section 150(o). Equation and table numbering on this CF-6R corresponds to the numbering for that information in the published ASHRAE Standard 62.2.

### WHOLE-BUILDING VENTILATION

**Ventilation Rate:** A mechanical supply system, exhaust system, or combination thereof shall provide whole-building ventilation with outdoor air each hour at no less than the rate in equation 4.1a. For dwelling occupant densities known to be greater than  $(N_{br} + 1)$ , the rate shall be increased by 7.5 cfm for each additional person.

**Delivered Ventilation**: The effective ventilation rate of an **intermittent** system is the combination of its delivered capacity, its fractional on-time, cycle time, and the ventilation effectiveness from Table 4.2. This calculation only applies to intermittent systems.

Table 4.2 – Ventilation Effectivenes	s for Intermittent Fans
Daily Fractional On-Time, <b>f</b>	Ventilation effectiveness, <b>ε</b>
f ≤ 35%	0.33
$35\% \le f < 60\%$	0.50
60% ≤ <b>f</b> < 80%	0.75
80% ≤ <b>f</b>	1.0
Fan runs at least once every three hours	1.0

Whole-Buildi	ng Ventilation Rate Summary
	hod used to provide Whole- ilation and enter the required fan ). Select one:
☐ Continuous	s fan flow (cfm) =
☐ Intermitten	nt fan flow (cfm) =
selection of the and for the due ventilation sys	ow rate from this summary for e whole-building ventilation fan ct design for the whole-building stem. Provide the system design applicable sections below.

## LOCAL VENTILATION EXHAUST

Local mechanical exhaust fans shall be installed in each kitchen and bathroom. The minimum airflow rates shall be at least the amount indicated in tables 5.1 and 5.2.

Table 5.1 Intermittent Local Ventilation Exhaust Airflow Rates			Table 5.2 Continuous Local Ventilation Exhaust Airflow Rates			
Application	Airflow	Notes	Application	Airflow	Notes	
Kitchen	100 cfm	Vented range hood required if exhaust fan flow is less than 5 ACH	Kitchen	5 ACH	Based on Kitchen Volume	
Bathroom	50 cfm		Bathroom	20 cfm		

INSTALLATION CERTIFICATE		CF-6R-MECH-05
Indoor Air Quality and Mechanical Ventilation		(Page 2 of 5)
Site Address:	<b>Enforcement Agency:</b>	Permit Number:

# VENTILATION SYSTEM DESIGN - Fan selection and duct design criteria for compliance

The airflow rates required refer to the delivered airflow of the system as installed and tested using a flow hood, flow grid, or other airflow measuring device. Alternatively, the airflow rating at a pressure of 0.25 in. w.c. of a certified fan may be used to demonstrate compliance without testing of the airflow of the installed system, provided the system duct sizing meets the prescriptive requirements of Table 7.1, or manufacturer's design criteria. Other methods may be used to provide the required ventilation rates when approved by a licensed design professional, subject to confirmation of delivered ventilation airflow of the installed system. Central Fan Integrated (CFI) ventilation systems shall demonstrate compliance by field testing of the delivered ventilation airflow of the installed system.

WHOLE-BUILDING VENTILATION SYSTEM DESIGN - Identify the ventilation system design criteria				
(select one criteria from this column)	Requirements for installer to demonstrate compliance with code	Airflow Test Required?		
☐ Prescriptive design (Table 7.1)	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the Table 7.1 prescriptive design criteria.	no		
☐ Central Fan Integrated (CFI)	Central forced air system fans used in Central Fan Integrated ventilation systems shall demonstrate, in air distribution mode, a watt draw less than 0.58 W/CFM per Standards §151(f)11. Submit a CF-6R-MECH-22-HERS form for each forced air unit used for a CFI system. HERS verification is required.	yes		
☐ Engineered Design	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the engineered ventilation system design approved by the enforcement agency.	yes		
☐ Manufacturer's design criteria	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the manufacturer's ventilation system duct design criteria.	no		

LOCAL VENTILATION SYSTEM DESIGN - Identify the ventilation system design criteria				
(select one criteria from this column)	Requirements for installer to demonstrate compliance with code	Airflow Test Required?		
☐ Prescriptive design (Table 7.1)	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the Table 7.1 prescriptive design criteria.	no		
☐ Engineered Design	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the engineered ventilation system design approved by the enforcement agency.	yes		
☐ Manufacturer's design criteria	Enter the installed ventilation air-moving equipment information and the installed ventilation duct system information in the tables below, and certify on the CF-6R that the installed system conforms to the manufacturer's ventilation system duct design criteria.	no		

INSTALLATION CERTIFICATE		CF-6R-MECH-05
Indoor Air Quality and Mechanical Ventilation		(Page 3 of 5)
Site Address:	<b>Enforcement Agency:</b>	Permit Number:

Table 7.1 Prescriptive Duct Sizing Requirements								
Diameter, (in)	Flex Duct				Smooth Duct			
Fan Rating cfm @ 0.25 in. w.g.	50	80	100	125	50	80	100	125
	Maximum Allowable Duct Length (ft)							
Diameter, (in)		Flex	Duct		Smooth Duct			
3	X	X	X	X	5	X	X	X
4	70	3	X	X	105	35	5	X
5	NL	70	35	20	NL	135	85	55
6	NL	NL	125	95	NL	NL	NL	145
7 and above	NL	NL	NL	NL	NL	NL	NL	NL

This table assumes no elbows. Deduct 15 ft of allowable duct length for each turn, elbow, or fitting. Interpolation and extrapolation in Table 7.1 is not allowed. For airflow values not listed, use the next higher value. This table is not applicable for airflow > 125 cfm. NL = no limit on duct length of this size.

X = not allowed, any length of duct of this size with assumed turns, elbows, fittings will exceed the rated pressure drop.

### INSTALLED VENTILATION AIR-MOVING EQUIPMENT INFORMATION

Ventilation devices and equipment shall be tested and rated by HVI procedures for airflow and sound. Sound rating maximum is 1.0 sone for all continuous duty fans; 1.0 sone for intermittent duty whole-building fans; and 3.0 sone for intermittent duty local exhaust fans. Refer to the Residential Compliance Manual section 4.6 for information about exclusions to these sound rating requirements. In the table below, list the fan equipment installed that meets the requirement for whole-building ventilation and local ventilation exhaust.

					0			
Fan or System Name or Location <sup>1</sup>	System Type <sup>2</sup> (WBV or LVE)	Required Airflow <sup>3</sup> (CFM)	Fan Manufacturer Name <sup>4</sup>	Fan Model Number <sup>5</sup>	Certified Airflow <sup>6</sup> (CFM)	Sound Rating <sup>7</sup> (Sone)	Fan Watts <sup>8</sup>	Calculate Fan (Watt per CFM) <sup>9</sup>

- 1) Enter the Fan or System Identification Name or Location Name or System Identifier (e.g. "Bath02" "MastBath", "Kitchen01").
- 2) What type of ventilation requirement is the fan specified to meet? WBV (whole-building ventilation) or LVE (local ventilation exhaust).
- 3) Enter the required ventilation airflow values determined by the calculations or tables in the WHOLE-BUILDING VENTILATION and/or LOCAL VENTILATION EXHAUST sections at the beginning of this Installation Certificate (CFM). At least one fan must be designated for use for compliance with the "Whole-Building Ventilation" requirement.
- 4) Enter the fan manufacture's name.
- 5) Enter the fan model number or series number.
- 6) Enter the fan's Certified Airflow rating at 0.25 inch w.c. (CFM). Fans rated at less than 0.25 inch w.c. (e.g. 0.1 inch w.c.) cannot be used to comply with the ventilation requirements using the prescriptive design criteria in Table 7.1. This certified airflow rating value must be equal to or greater than the required airflow from column 3 of this table when demonstrating compliance using the prescriptive design criteria in Table 7.1.
- 7) Enter the fan's certified sound rating (Sone) corresponding to the certified airflow rating that was entered in column 6 of this table for the fan.
- 8) Enter the fan watt draw corresponding to the certified airflow rate that was entered in column 6 of this table for the fan.
- 9) Divide the Watt value from column 8 by the Certified Airflow value (CFM) from column 6. Fans are required to be rated for operation at less than 1.2 Watt/CFM.

INSTALLATION CERTIFICATE		CF-6R-MECH-05
Indoor Air Quality and Mechanical Ventilation		(Page 4 of 5)
Site Address:	Enforcement Agency:	Permit Number:

## INSTALLED VENTILATION DUCT SYSTEM INFORMATION

Airflows required by the standard refer to delivered airflow of the installed system as determined by testing with a flow hood, flow grid, or other measuring device. Alternatively, the installed equipment's HVI airflow rating at a pressure of 0.25 inch w.c. may be used, provided the system can be inspected to confirm the duct sizing meets the prescriptive requirements of Table 7.1, or manufacturer's duct design criteria.

Fan or System Name or Location <sup>1</sup>	Compliance Method <sup>2</sup> (T; P; or M)	Required Airflow <sup>3</sup> (CFM)	Airflow Test <sup>4</sup> (CFM)	Duct Type <sup>5</sup>	Number of Elbows and Fittings <sup>6</sup>	Actual Duct Length <sup>7</sup> (ft)	Allowable Duct Length <sup>8</sup> (ft)	Pass or Fail <sup>9</sup>

- 1. Enter the Fan or System Identification Name, or Location Name, or System Identifier. These should be the same identifiers as shown in the INSTALLED VENTILATION AIR-MOVING EQUIPMENT INFORMATION table column 1 above.
- 2. Enter the method for demonstrating compliance with the ventilation airflow requirements. Enter "T" for Tested; "P" for Prescriptive Table 7.1 design criteria (inspection); "M" for Manufacturer's duct design criteria (inspection). Note: the building official may require submittal of manufacturer's published design criteria documentation if compliance is to be demonstrated by inspection of the installation for conformance to manufacturer's design criteria.
- 3. Enter the required ventilation airflow values determined by the calculations or tables in the WHOLE-BUILDING VENTILATION and/or LOCAL VENTILATION EXHAUST sections at the beginning of this Installation Certificate (CFM). These should be the same airflow values that were entered for each corresponding fan in column 3 of the INSTALLED VENTILATION AIR-MOVING EQUIPMENT INFORMATION table above.
- 4. If complying by a method that requires an Airflow Test of the installed system, enter the result from the Airflow Test for the installed system (CFM).
- 5. Enter duct type for the installed system. Choices are "Flex" or "Smooth" if using Table 7.1 for compliance.
- 6. Enter total number of elbows or fittings or abrupt turns in the ventilation duct for the installed system.
- 7. Enter the installed system's actual total duct length (ft).
- 8. If complying by use of the prescriptive design criteria or manufacturer's design criteria, enter the Maximum Allowable Duct Length (ft) for the system as determined by Table 7.1 or manufacturer's duct design criteria.
- 9. If complying by airflow test, the system passes if the Tested Airflow<sup>4</sup> equals or exceeds the Required Airflow<sup>3</sup>. If complying by demonstrating conformance to prescriptive design criteria or manufacturer's design criteria, the system passes if actual total duct length from column 7 is less than the maximum allowed length from column 8. Enter: Pass or Fail

INSTALLATION CERTIFICATE CF-6R-MECH-05							
Indoor Air Quality and Mechan	ical Ventilation	170	(Page 5 of 5)				
Site Address:		Enforcement Agency:	Permit Number:				
OTHER REQUIREMENTS The items listed below (6.1 through 6.8) correspond to the information given in ASHRAE 62.2 Section 6 "Other Requirements". Refer also to Chapter 4.6 of the Residential Compliance Manual (Section 4.6.5) for information describing these "Other Requirements". The signature of the Responsible Person in the declaration statement below certifies that the building complies with these requirements specified in ASHRAE 62.2 Section 6.1 through 6.8 if applicable.							
☐ 6.1 Transfer Air							
☐ 6.2 Instructions and Labeling							
☐ 6.3 Cloths Dryers							
☐ 6.4 Combustion and solid-fuel bur	rning appliances						
☐ 6.5 Garages							
☐ 6.6 Ventilation Opening Area							
☐ 6.7 Minimum filtration							
□ 6.8 Air Inlets							
<ul> <li>□ Prescriptive Designs: For ventilation systems that utilize prescriptive design criteria, the signature of the Responsible Person in the declaration statement below certifies that the installed system conforms to the prescriptive ventilation system design criteria from Table 7.1 of Standard 62.2 and manufacturer's installation specifications.</li> <li>□ Engineered Designs: For ventilation systems that utilize engineered design criteria, the signature of the Responsible Person in the declaration statement below certifies that the installed system conforms to the engineered ventilation system design documentation approved by the enforcement agency.</li> <li>□ Manufacturer's design criteria: For ventilation systems that utilize manufacturer's design criteria, the signature of the Responsible Person in the declaration statement below certifies that the installed system conforms to the manufacturer's</li> </ul>							
<ul> <li>published duct system design criteria and installation specifications.</li> <li>DECLARATION STATEMENT</li> <li>I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.</li> <li>I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).</li> <li>I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.</li> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.</li> <li>I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.</li> </ul>							
Company Name: (Installing Subcontractor	or or General Contractor or I	Builder/Owner)					
Responsible Person's Name:		Responsible Person's Signature:					
CSLB License:	Date Signed:	Position With Company (Title):					

TNIC	TALLATION CEDITICA	TE					CE (D A	/ECI	T 0.0
	TALLATION CERTIFICA						CF-6R-N		
	poratively Cooled Condens	ing Units		E6		1		age 1	of 2)
Site	Address:			Ento	rcement Agency	<b>:</b>	Permit Number:	•	
	A C CENCERT FC								
HV	AC SYSTEMS: Evaporative	ely Cooled Cor	ndensing U	nits	T	1	т г		
	CEC Certified Mfr. Name	# of			Duct	Duct	Cooling	Cool	ing
	and Model Number	Identical	EED	EER <sub>b</sub>	Location	R-	Load	Capa	
	Model Number	Systems	EER <sub>a</sub>	EEKb	(attic, etc.)	value	(Btu/hr)	(Btu/	nr)
							+		
EER	$a = EER$ at $75^{\circ} F$ wetbulb and $95^{\circ} F$	dry bulb;							
EER	$_{b} = EER$ at $65^{o}F$ wetbulb and $82^{o}F$	dry bulb							
The	system complies with all eligib	nility criteria:						YES	NO
	EER at 95° F dry bulb and 75° F wet	-	e is listed wi	th ARI					
	EER at 82° F dry bulb and 65° F wet	-			d published in a	cordance	with ARI	+	
	guidelines.	•			•				
						Pass if:	Yes in lines 1-5		
The	system complies with all eligib	oility criteria:						YES	NO
1	Water stays in the water casing								
2	Water pump starts running who	n the system i	s turned on	•					
3	When the water pump is running	ng, verify that a	all the cond	enser coils	are wet.				
	High pressure trip for the comp								
4	Refrigerant and at or below the	saturation pre	ssure corre	sponding to	o a temperature	of 131 <sup>0</sup>	F for all other		
	refrigerants.  When the water supply to the v	inter cocing is	turned off	and the cas	ing is drained	the weter	r numn (if the	-	
5	pump is water cooled) and the			mu me cas	ing is drained,	ine wate.	i pump (ii me		
6	Condenser coils have a corrosi								
7	Electrolytic protection is instal	led, and the wi	ring of the	protection	circuit is intact				
8	Water casing is made up of cor	rosion-resistan	nt material.	_					
	A blow-down pump is installed			in order to	remove solids	from the	water casing.		
9	Operation of this pump is autor	natic and is lin	iked to com	pressor ru	n time or condu	ectivity o	of the water in		
10	the casing.	1.4	1.1	1	-4*			-	
10	Water casing is sloped downwa					i			
11	Drift elimination is in place, the Verify that condensate from the						e cuhmittad to		
12	the Building Department show								
_	safety concerns.	5	r2			т	, , , , ,		

INSTALLATION CERTIFICATE			CF-6R-M	ECH	<b>I-06</b>	
<b>Evaporatively Cooled Condensing Units</b>				ge 2 (		
Site Address:	Enforceme	ent Agency:	Permit Number:	, .		
	<u> </u>					
Condenser has manufacturer's certification	n that water consumption is le	ss than or equal to	5.0 gallons per			
ton-hour of capacity at ARI Rating condi						
Water connection is made with tubing no connection.	more than ¼" ID at the unit. I	Larger line may co	me up to the			
Overflow from the unit is not connected direct						
overflow condition can be more easily detected) or another means of determining an overflow condition is provided.  Pass if: Yes in lines 1-15						
<ul> <li>□ EER for evaporatively cooled condensers must be verified by a HERS rater.</li> <li>□ Ducts are required to be tested and sealed in all evaporatively cooled condenser installations, and the duct sealing must be vera HERS rater.</li> <li>□ Proper refrigerant charge or a Charge Indicator Light (certified by the Energy Commission) must be verified by rater for all evaporatively cooled condenser installations.</li> </ul>						
DECLARATION STATEMENT						
• I certify under penalty of perjury, under the laws		-			ect.	
<ul> <li>I am eligible under Division 3 of the Business are representative of the person responsible for constitution.</li> </ul>		onsibility for constru	action, or an authoriz	ed		
<ul> <li>I certify that the installed features, materials, conconforms to all applicable codes and regulations enforcement agency.</li> </ul>					he	
• I reviewed a copy of the Certificate of Compliar requirements for the installation. I certify that tl						
I will ensure that a completed, signed copy of permit(s) issued for the building, and made a that a signed copy of this Installation Certific the building owner at occupancy.	his Installation Certificate shal ailable to the enforcement agen	l be posted, or mad cy for all applicable	e available with the e inspections. I und	build erstai	ing nd	
Company Name: (Installing Subcontractor or Gene	al Contractor or Builder/Owner)					
Responsible Person's Name:	Responsible Pe	erson's Signature:				

CSLB License:

Date Signed:

Position With Company (Title):

INSTALLATION CERTIFICATE		CF-6R-MECH-07
<b>Evaporative Coolers</b>		(Page 1 of 2)
Site Address:	Enforcement Agency:	Permit Number:

# **Evaporative Cooler Units**

CEC Certified Mfr. Name and Model Number	# of Identical Systems	EER	Duct Location (attic, etc.)	Duct R-value	Total Power (watts)
		13			
		13			
		13			
		13			

The	e system complies with all eligibility criteria:	□ Systen	n Qualifies
	The equipment manufacturer shall certify to the Commission that water use does not exceed	✓	✓
1	7.5 gallons per ton hour based on the Title 20 Appliance Standards testing criteria.	□ Yes	□ No
2	Equipment shall be permanently installed (no window or portable units).	☐ Yes	□ No
3	Installation shall provide for automatic relief of supply air from the house with maximum air velocity through the relief dampers not exceeding 800 fpm (at the Title 20 rated airflow). Pressure relief dampers and ductwork shall be distributed to provide adequate airflow through all habitable rooms. For installations with an attic, ceiling dampers shall be installed to relieve air into the attic, and then to outside through attic vents. For installations without an attic, sidewall relief dampers are acceptable.	□ Yes	□ No
4	To minimize water consumption, bleed systems are not allowed.	☐ Yes	□ No
5	A water quality management system (either "pump down" or conductivity sensor) is required. "Pump down" systems can either be integral to the evaporative cooler or they can be accessories that operate on a timed interval. The time interval between dumps shall be set to a minimum of six hours of cooler operation. Longer intervals are encouraged if local water quality allows	□ Yes	□ No
6	Automatic thermostats are required. On/off control is not allowed.	☐ Yes	□ No
7	If the evaporative cooler duct system is shared with a heating and/or cooling system, the installed duct system shall employ backdraft dampers at the evaporative cooler supply.	□ Yes	□ No
8	The installing contractor must provide a winter closure device that substantially blocks outdoor air from entering the indoor space.	□ Yes	□ No
9	The size of the water inlet connection at the evaporative cooler shall not exceed 3/8".	☐ Yes	□ No
10	Unless prohibited by local code, the sump overflow line shall not be directly connected to a drain and shall be terminated in a location that is normally visible to the building occupants.	□ Yes	□ No

INSTALLATION CERTIFICATE					<b>MECH-07</b>
Evaporative Coolers (Page 2 of 2					
Site	Address:	Enforcement Agency: Permit Number:			:
11	System type is either indirect or direct/indirect Note: direct evaporative coolers cannot be used as part of the evaporative cooling compliance option. (Circle witch type)				direct/ indirect

Pass if: Yes in lines 1-

#### **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)							
Responsible Person's Name:		Responsible Person's Signature:					
CSLB License:	Date Signed:	Position With Company (Title):					

☐ Fail

☐ Pass

TNICT	TALLATION CERTIFICATE					CF (I	R-MECH-08
		Unite					(Page 1 of 2)
Ice Storage Air Conditioning (ISAC) Units  Site Address: Enforcement Agency: Pern						Permit Numl	, 0
SILC A	nte Address.						Jei .
Ice S	torage Air Conditioning (ISAC) l	<i>Jnits</i>					
	the specification information from the onents in the table below.	CEC databa	se for the in	stalled condensi	ng unit and	for the install	ed system
comp	onents in the table below.	# of		Duct		Cooling	Cooling
		Identical		Location	Duct	Load	Capacity
	Name and Model Number <sup>1</sup>	Systems	SEER <sup>1</sup>	(attic, etc.)	R-value	(Btu/hr)	(Btu/hr)
					ı	Į.	
The s	ystem complies with all eligibility crit	eria:				☐ Syste	m Qualifies
						✓	✓
The n	nodel number of the installed unit mate	ches the mode	el number u	sed for complian	ce credit.	☐ Ye	s 🔲 No
The s	ystem complies with all eligibility crit						m Qualifies
1	Verify that building cooling is control		ndard indoor	r HVAC thermos	stat and not		<b>✓</b>
	factory installed controls.					□ Ye	
2	Verify that ice Making is not control	•				□ Ye	
3	Verify that the water tank is filled to			•		☐ Ye	s 🗆 No
4	Verify that the correct model number				ncluding) ti	me  □ Ye	s 🗆 No
	is installed. Certify the installed mod				tha miahttin		
	Force the controls to indicate no dentime period and simulate that the tan						
5	properly in the Ice-Making mode (i.e.					□ Ye	s 🔲 No
	cooling to the building).	.,			1		
	Force the controls to indicate no dem	and for cooli	ng, set the t	ime to be within	the nighttin	ne	
6	time period, and simulate the tank be					□ Ye	s 🗆 No
Ü	properly in the Idle mode (i.e., the co	ompressor is o	off, and no c	cooling via the sy	stem is	- 10	
	provided).  Force the controls to indicate a dema	nd for apolin	a and sat th	a tima ta ha with	in the devition	ma	
7	time period. Verify that the system of					∏ Ye	s
,	discharging and that the compressor		, 111 1110 11	ce men mode (1.	, 11 statts		
	Force the controls to indicate a dema		g and set the	e time to be with	in the morn	ing	
8	shoulder time period. Verify that the	system oper	ates properl				s 🗆 No
	(i.e., the system is providing cooling	with the com	pressor).				

INS	INSTALLATION CERTIFICATE CF-6R-MECH-08						
Ice Storage Air Conditioning (ISAC) Units (Page 2 of 2							
Site Address: Enforcement Agency: Pe		Permit Number:	Permit Number:				
9	Force the controls to indicate no cooling load, and set the time to be within the daytime time period. Verify that the system operates properly in the Idle mode (i.e., it does not provide cooling to the building, and the compressor is off).						
10	Force the controls to indicate a demand for cooling and set the time period. Verify that the cooling is provided by the compresso	□ Yes	□ No				
		Pass if: Yes in lines 1	- 10 □ Pass	☐ Fail			

□ Ducts are required to be tested and sealed in all Ice Storage Air Conditioner installations, and the duct sealing must be verified by a HERS rater.

#### **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation)
  conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the
  enforcement agency.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)					
Responsible Person's Name:		Responsible Person's Signature:			
CSLB License: Date Signed:		Position With Company (Title):			

# CF-6R – MECHANICAL – HERS

	INSTALLATION CERTIFICATE CF-6R-MECH-20-HE						
Duct Leakage Test - Completely New or Replacement Duct System         (Page)							
Site Address: Enforcement Agency: Permit Number:							
Enter the Duct System Name or Identification/Tag:							
Enter the Duct System Location or Area Served:							
lote: Submit one Installation Certificate for each duct	system that must demonstrate comple	iance in the dwelling	7.				
This certificate is required for compliance for complete or completely new or replacement duct systems in exist eplacement duct system can also include existing parts lenums, etc.) if those parts are accessible and they can	ting dwellings. For existing dwelling s of the original duct system (e.g., reg	s, a completely new	or				
Ouct Leakage Diagnostic Test – completely new or r							
Inter a value for the Allowed Leakage (CFM) for the d Verified Low Leakage Ducts in Conditioned Space crit							
Verified Low Leakage Ducts in Conditioned Space (or verified low leakage ducts in conditioned space is sheakage to outside test method must be used to verify duntered for Allowed Leakage.	VLLDCS) Compliance Credit. If compound in the special features section of	ompliance credit f the CF-1R, the	Allowed Leakage (CFM)				
Allowed leakage calculation – (select one calculation no.06) for calculations if tested at "final" or 4% ( <i>leakage</i> ow Leakage Air Handler (LLAH) credit, the allowed on an 6%, in which case the user-specified leakage rate rate user-specified leakage (specified as a percentage of the eakage factor of 0.03 in the calculations below.	$e_{factor} = 0.04$ ) if tested at "rough." Valuet leakage may be specified by the must be used in the calculations below	When utilizing CF-1R to be less V. For example, if					
Cooling system method:  Jominal capacity of condenser in Tons	_ x 400 x leakage factor =	(CFM)					
Heating system method:  1.7 xOutput Capacity in Thous	sands of Btu/hr x leakage factor =	(CFM)					
Measured airflow method (RA3.3):							
Enter measured fan flow in CFM here	x leakage factor =	(CFM)					
Enter value for <b>Actual</b> leakage (CFM) in the right columns ressurization test procedure from Reference Residentia		ble duct leakage	Actual Leakage (CFM)				
	List <b>Actual</b> Leakage from duct l	eakage test (CFM)					
ass if Actual Leakage is less than Allowed Leakage			Pass □ Fai				
for complete replacement of duct systems only, if the 6 est should be performed to verify that the excess leakage ir handler cabinet), and not from other <i>accessible</i> portustallation (No sampling allowed).	percent leakage rate criteria cannot be ge is coming only from a pre-existing tions of the duct system. A HERS rate	be met, a smoke furnace cabinet ter must verify the					

INSTALLATION CERTIFICAT	CF-6R-MECH-20-HERS							
<b>Duct Leakage Test – Completely</b>	Duct Leakage Test - Completely New or Replacement Duct System							
Site Address:	Eı	nforcement Agency:	Permit Number:					
Compliance Method								
This dwelling was: (select one of the f	following two choices	):						
☐ Tested at Rough-in (requires insta	ller to complete the <i>vi</i> .	sual inspection at final con	struction stage described below)					
Visual Inspection at Final Construc								
After installing the interior finishing was following procedure must be performed.		the above rough-in tests w	vas completed, the					
☐ For all supply and return registers,		between the register boot	and the interior finishing wall are					
properly sealed.								
☐ If the house rough-in duct leakage	test was conducted wi	thout an air handler install	led, inspect the connection points					
between the air handler and the sup	oply and return plenun	ns to verify that the connec	ction points are properly sealed.					
☐ Inspect all joints to ensure that no		•	1 1 2					
			.1 1.1/2 1.00.1 . 1					
☐ Outside air (OA) ducts for Central leakage testing. CFI OA ducts that util								
meet ASHRAE Standard 62.2, and clo								
during duct leakage testing.	.1 11.1							
☐ All supply and return register boot		•						
<ul><li>☐ New duct installations cannot utilize</li><li>☐ Mastic and draw bands must be use</li></ul>	•	•						
connections.	ed in combination with	i Cioui backed, idobei adi	lesive duct tape to sear leaks at duct					
DECLARATION STATEMENT								
		•	provided on this form is true and correct.					
<ul> <li>I am eligible under Division 3 of the B representative of the person responsible</li> </ul>			for construction, or an authorized					
I certify that the installed features, mat								
conforms to all applicable codes and re enforcement agency.	egulations, and the instal	lation is consistent with the p	lans and specifications approved by the					
	eck the installation to ver	rify compliance, and that that	if such checking identifies defects, I am					
required to take corrective action at my	y expense. I understand	that Energy Commission and	HERS provider representatives will also					
rater, and if those installations fail to n			mple group but not checked by a HERS ing, the required corrective action and					
additional checking/testing of other ins	stallations in that HERS	sample group will be perform	ned at my expense.					
<ul> <li>I reviewed a copy of the Certificate of requirements for the installation. I cer</li> </ul>								
• I will ensure that a completed, signed	d copy of this Installati	on Certificate shall be poste	d, or made available with the building					
			applicable inspections. I understand cumentation the builder provides to the					
building owner at occupancy. I will	ensure that all Installation	n Certificates will come from	a HERS provider data registry for					
multiple orientation alternatives, and b  Company Name: (Installing Subcontracto			buildings.					
Company Name. (Histaring Subcontracto	i of General Contractor (	or Burider/Owner)						
Responsible Person's Name:		Responsible Person's Sign	nature:					
CSLB License:	Date Signed:	Position With Company (	Title):					
COLD LICENSO.	Date Signed.	1 control with Company (	().					
Is this installation monitored by a Third Pa		Name of TPQCP (if appli	icable):					
Program (TPQCP)?	□Yes □No							

\_ Registration Date/Time: \_\_\_\_\_\_ HERS Provider: \_\_

	STALLATION CERTIFICATE			CF-6R-ME	CH-21-HERS
	ct Leakage Test – Existing Duct Syster Address:	n	Enforcement Agency:	Permit Numbe	(Page 1 of 2)
			, , , , , , , , , , , , , , , , , , ,		_
Ent	er the Duct System Name or Identification/Ta	ag:			
Ent	er the Duct System Location or Area Served:				
Not	e: Submit one Installation Certificate for eac	ch duct system	that must demonstrate com	pliance in the dwe	elling.
	s installation certificate is required for comp ditioning systems and duct systems.	liance for alter	ations and additions in exis	sting dwellings to	space
duc con	e: For existing dwellings, a completely new t system (e.g., register boots, air handler, coi apletely new or replacement duct system insta kage Test – Completely New or Replacement	il, plenums, etc. alled in an exis	) if those parts are accession ting dwelling, use the Insta	ble and they can b	oe sealed. For a
	ct Leakage Diagnostic Test – Existing Duct				
	ect one compliance method from the following Option 1. Measured leakage less than 15% of	•			
	Option 2. Measured leakage to outside less th		Airflow		
	Option 3. Reduce leakage by 60% or more, a			o looka	
				e leaks.	
	Option 4. Fix all accessible leaks using smok te: (Option 1 must be attempted before utilizing)		RS rater must verify.		
	termine nominal <b>Fan Airflow</b> using one of the Cooling system method: Size of condenser in	•		M	
	Heating system method: 21.7 x				
	Measured system airflow using RA3.3 airflow				
	Option 1 used then:				
1	Allowed leakage = Fan Airflow		x 0.15 =	CFM	
1	Actual leakage =		tual laakaga is laga than A	llowed lookees	☐ Pass ☐ Fail
	Option 2 used then:	rass II Au	tual leakage is less than A	inoweu ieakage	L Fass L Faii
2	Allowed leakage = Fan Airflow		_ x 0.10 =	CFM	
2	Actual leakage to outside =	<del></del>			
	Option 3 used then:	i Actual leaka	ge to outside is less than A	Allowed leakage	☐ Pass ☐ Fail
	Initial leakage prior to start of work=	CFN	1		
	Final leakage after sealing all accessible le	aks using smok	re test =CI	FM	
3	Initial leakage Final leakag	e	= Leakage reduction	CFM	
	(Leakage reduction/ Initial l	eakage	) x 100% = % Reduc	etion	
			Pass if % Re	eduction ≥ 60%	☐ Pass ☐ Fail
4	Option 4 used then: All accessible leaks repaired using smoke to	test. HERS rat	er must verify (No samplin	g).	
	Pass if	all accessible	leaks have been sealed us	ing Smoke Test	□ Pass □ Fail
	istration Number: 8 Residential Compliance Forms	Registration	Date/Time:	HERS Provide	r: August 2009

INSTALLATION CERTIFICAT	CF-6R-MECH-21-HERS		
<b>Duct Leakage Test – Existing Du</b>	ct System		(Page 2 of 2)
Site Address:		Enforcement Agency:	Permit Number:
☐ Outside air (OA) ducts for Central leakage testing. CFI OA ducts that uti meet ASHRAE Standard 62.2, and clo during duct leakage testing.	lize controlled motorized se when OA ventilation	d dampers, that open only whe is not required, may be config	en OA ventilation is required to ured to the closed position
☐ All supply and return register boots duct leakage compliance option 3 (leak			
☐ New duct installations cannot utiliz	ze building cavities as ple	enums or platform returns in l	ieu of ducts.
☐ Mastic and draw bands must be used duct connections.	ed in combination with c	loth backed rubber adhesive d	uct tape to seal leaks at all new
<ul> <li>DECLARATION STATEMENT</li> <li>I certify under penalty of perjury, unde</li> <li>I am eligible under Division 3 of the Brepresentative of the person responsible</li> <li>I certify that the installed features, mate conforms to all applicable codes and reenforcement agency.</li> <li>I understand that a HERS rater will che required to take corrective action at my perform quality assurance checking of rater, and if those installations fail to me.</li> </ul>	usiness and Professions Code for construction (responsible erials, components, or manufaculations, and the installation code the installation to verify expense. I understand that installations, including those the requirements of such expenses and Professions Code and Profession Code and Professi	de to accept responsibility for corble person).  Ifactured devices identified on the on is consistent with the plans and compliance, and that that if such at Energy Commission and HERS approved as part of a sample graph quality assurance checking, the	is certificate (the installation) d specifications approved by the  checking identifies defects, I am provider representatives will also roup but not checked by a HERS required corrective action and
<ul> <li>additional checking/testing of other ins</li> <li>I reviewed a copy of the Certificate of requirements for the installation. I cert</li> </ul>	Compliance (CF-1R) form a cify that the requirements de	approved by the enforcement age trailed on the CF-1R that apply to	ncy that identifies the specific the installation have been met.
• I will ensure that a completed, signed permit(s) issued for the building, and that a signed copy of this Installation building owner at occupancy. I will a multiple orientation alternatives, and be	I made available to the end Certificate is required to ensure that all Installation C	forcement agency for all applicate be included with the document Certificates will come from a HEF	able inspections. I understand tation the builder provides to the RS provider data registry for
Company Name: (Installing Subcontractor	r or General Contractor or E	Builder/Owner)	
Responsible Person's Name:		Responsible Person's Signature:	
CSLB License:	Date Signed:	Position With Company (Title):	
Is this installation monitored by a Third Pa Program (TPQCP)?	rty Quality Control  ☐Yes ☐No	Name of TPQCP (if applicable):	

\_ Registration Date/Time: \_\_\_\_\_

\_\_ HERS Provider: \_

INSTALLATION CERTIFICATE CF-6R-MECH-22-HERS									
HSPP/PSPP Installation; Cooling Coil Airflow & Fan Watt Draw Test (Page 1 of 2)									
Site Addr	· · · · · ·		Enforcement Agency:	Permit Number:					
	As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.								
	Hole for the placement of a Static Pressure Probe (HSPP), and Permanently installed Static Pressure Probe (PSPP) in the supply plenum								
HSPP or		alled in each air handl	er in the dwelling. Proced	t Draw verification are required, ures for installing HSPP and PSPP tion by a HERS rater.					
Select one	method from the two choices be								
	HSPP			n of the evaporator coil in the supply					
	PSPP	1/4 inch (6 mm) hole ed		stalled pressure probe, labeled and oly plenum as shown in the figure in					
System N	Name or Identification/Tag								
System L	ocation or Area Served								
	that a HSPP or PSPP has been on the air handler per the	1							
	ents of RA3.3.1.1.								
	Enter Pass or I	Fail							
When the the coolin coil airfle	ng coil airflow must be perform ow diagnostic test must be enter method from the three choices b	dicates Cooling Coil A med as specified in Rej ered in the table below elow for compliance with	ference Residential Append This measure requires von the Cooling Coil Airflow tes	et requirement for this dwelling.					
	gnostic Fan Flow Using Plent	· ·	• •						
	gnostic Fan Flow Using Flow								
	gnostic Fan Flow Using Flow	Capture Hood accord	ing to the procedures in RA	X3.3.3.1.3					
System N	Name or Identification/Tag								
	ocation or Area Served								
outdoor u									
	minimum airflow requirement CF-1R (CFM/ton).	ıt							
the test by specified	Calculate the target minimum airflow for the test by multiplying the CFM/ton criteria specified on the CF-1R by the nominal cooling capacity of the outdoor unit (ton).								
Enter the	Target (CFM)  Enter the diagnostically tested airflow								
(CFM).	Tested (C								
The system complies if Tested (CFM) is equal or greater than Target (CFM).									
	Enter Pass or	: Fail							
	on Number:idential Compliance Forms	Registratio	n Date/Time:	HERS Provider: August 2009					

INSTALLATION CERTIFICATE CF-6R-MECH-22-HERS						
HSPP/PSPP Installation; Cooling Coil Airflow & Fa						
Site Address:			Enfo	rcement Agency:	Permit Nun	nber:
Fan Watt Draw Verification  When the Certificate of Compliance indicates Fan Watt Draw verification is required, the procedures for measuring the Fan Watt Draw must be performed as specified in Reference Residential Appendix RA3.3. Results of the Fan Watt Draw diagnostic test must be entered in the table below. This measure requires verification by a HERS rater. Note: Fan watt draw must be measured simultaneously with cooling coil airflow. The fan watt draw measurement and cooling coil airflow measurement must simultaneously meet or exceed their target criteria specified by the CF-1R for the dwelling.						
Select one method from the two choices bed	low for cor	mpliance with th	he Fan	Watt Draw test requi	rement for this dwell	ling.
Portable Watt Meter Measuremen						
Utility Revenue Meter Measurem	ient accor	rding to the pr	ocedui	res in RA3.3.3.3.2		
System Name or Identification/Tag						
System Location or Area Served	.4					
Enter the air handler Target (CFM) fro cooling coil airflow test table above.						
Enter the fan watt draw requirement from CF-1R (Watt/CFM).	om the					
Calculate the target maximum Watt drawthe test by multiplying the Watt/CFM of specified on the CF-1R by the air hand Target (CFM). Target (	criteria ler (Watt)					
Enter the diagnostically tested Watt dra						
(Watt). Tested The system complies if Tested (Watt) if than or equal to Target (Watt)	is less					
Enter pass of DECLARATION STATEMENT	птан					
I certify under penalty of perjury, under	r the laws	of the State of C	Californ	nia, the information p	rovided on this form	is true and correct.
• I am eligible under Division 3 of the Br representative of the person responsible					for construction, or a	in authorized
I certify that the installed features, mate conforms to all applicable codes and re enforcement agency.	erials, com	ponents, or ma	nufactu	red devices identified		
<ul> <li>I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</li> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.</li> </ul>						
• I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives, and beginning October 1, 2010, for all low-rise residential buildings.						
Company Name: (Installing Subcontractor	or Genera	al Contractor or	Builde	r/Owner)		
Responsible Person's Name:			Resp	onsible Person's Sign	ature:	
CSLB License:	Date Sign	ned:	Posit	ion With Company (	Γitle):	
Is this installation monitored by a Third Party Quality Control Program (TPQCP)?  Name of TPQCP (if applicable):						

\_\_Registration Date/Time: \_\_\_\_\_\_\_HERS Provider: \_

INSTALLATION CERTIFICATE CF-6R-MECH-23-HERS  Verification of High EER Equipment (Page 1 of 1)							
Verification of High EER Equipment Site Address:				Enforcement Agency: Permit Number:			
Site A	duress:		Ellion	tement Agency.	Fermit Number	•	
Proce multip	Verification of High EER Equipment  Procedures for verification of High EER Equipment are described in Reference Residential Appendix RA3.4. For dwelling units with multiple systems, the procedures must be applied to each system separately. As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.						
1	System Name or Identification/	Гад					
2	System Location or Area Served	d					
3	Certified EER Rating of the insteading equipment (Btu/Watt-hr)	talled					
4	Make and Model Number of the Outdoor Unit	e installed					
5	Make and Model Number of the Inside Coil	e installed					
6	Make and Model Number of the Furnace or Air Handler.	e installed					
7	Minimum Equipment EER requ compliance as reported on the C	CF-1R					
compl	then a high EER system specification iance credit. Refer to Reference Res then installation of specific matched of the for compliance credit. Refer to Re	sidential Appendix R equipment is necessa	RA3.4.3 for the ary to achieve a	Time Delay Relay Ven high EER, installation	rification Procedure.  In of the specific equip	oment must be	
8	If the Certified EER Rating in requal to or greater than the requirement minimum EER in row 7, the un complies.  If the unit complies en	iired it					
DECI	-ARATION STATEMENT	1 435		<u>l</u>		<u> </u>	
<ul><li>I c</li><li>I a</li></ul>	ertify under penalty of perjury, under am eligible under Division 3 of the Boresentative of the person responsible	usiness and Profession	ons Code to ac	cept responsibility for			
co	ertify that the installed features, mate nforms to all applicable codes and re forcement agency.						
<ul> <li>I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</li> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.</li> <li>I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives, and beginning October 1, 2010, for all low-rise residential buildings.</li> </ul>							
Comp	any Name: (Installing Subcontractor	r or General Contrac	ctor or Builder/	Owner)			
Respo	nsible Person's Name:		Respon	nsible Person's Signatu	re:		
CSLB	License:	Date Signed:	Positio	on With Company (Title	e):		

INSTALLATION CERTIFICATE CF-6R-MECH-24-HERS								
	Charge Indicator Display (CID) (Page 1 of 1)							
	ddress:	# V \ /			Enforcement Agency:		Permit Nun	`
Charg for the a CID demo refrig shown	CHARGE INDICATOR DISPLAY (CID) Charge Indicator Display (CID) specifications are available in Reference Joint Appendix JA6; HERS verification procedure for the CID is in Reference Residential Appendix RA3.4.2. If refrigerant charge verification is required for compliance, and a CID has been installed on the system, a pass for this CID verification for an installed system is sufficient for demonstrating compliance with the refrigerant charge verification requirement for that system, thus submittal of a standard refrigerant charge verification compliance form (MECH 25) is not required for a system that has a passing CID verification shown in the table below.							
CID.	· Verification o	of the Presence a	ind Pr	oper Function of a	Charge Indicator D	Display 		
Syste	m Name or Ider	ntification/Tag						
Syste	m Location or A	Area Served						
1	□Yes	□No	The di	isplay module is mo	unted adjacent to the	system	thermostat	
2	□Yes	□No	65 F a	nd outdoor tempera	for at least 15 minute ture is greater than 5 erating properly (doe	5 F, and	the CID disp	olay module
3	□Yes	□No	The C	ID was installed by	the manufacturer			
4	□Yes	□No	or if 3	is No, the CID was	installed according t	,		•
Yes to	o 1 and 2 and ye	es to either 3 or 4	is a pa	ass	enter Pass or Fail	✓	□ Pass	✓ □ Fail
I a rep I c coo en I u rec pe rat ad I re I v pe tha	<ul> <li>I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.</li> <li>I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</li> </ul>							
		_	or or Ge	eneral Contractor or B				
	nsible Person's N	ame:	_		Responsible Person's Si			
CSLB	License:		Date	Signed:	Position With Company	y (Title):		
	installation moni am (TPQCP)?	itored by a Third P	arty Qu □Y	•	Name of TPQCP (if app	plicable):		

\_\_Registration Date/Time: \_\_\_\_\_\_\_HERS Provider: \_

	INSTALLATION CERTIFICATE					CF-6R-M	IECH-25-HERS	
Refrigerant Charge Verification - Standard Measurement Procedure						-		(Page 1 of 5)
Site A	Address:			]	Enforcement Agency:		Permit Nun	nber:
Note: If installation of a Charge Indicator Display (CID) is utilized as an alternative to refrigerant charge verification for compliance, a MECH-24 Certificate (instead of this MECH-25 Certificate) should be used to demonstrate compliance with the refrigerant charge verification requirement. TMAH and STMS are not required for compliance, when a CID is utilized for compliance.						e compliance with		
	any as 4 system. Additional system				npliance using this fo	orm. Att	tach an addi	tional form(s) for
Proce is req	edures for insta uired for comp	lling TMAH ar liance, TMAH	e specific are also	ed in Reference Resi required for complic	ration Temperature dential Appendix RA ance. STMS are only compliance method.	3.2. If r require	efrigerant ch	harge verification
TMA	AH - Access Ho	les in Supply	and Retu	ırn Plenums of Air	Handler			
Syste	m Name or Ide	ntification/Tag						
Syste	m Location or A	Area Served						
1	□Yes	□No			role upstream of evap re in Section RA3.2.2		coil in the re	turn plenum and
2	□Yes	□No			ole downstream of e Figure in Section RA			e supply plenum
Yes t	o 1 and 2 is a pa	ass.	•		Enter Pass or Fail	✓	□ Pass	✓ □ Fail
STM	S - Sensor on t	he Evaporato	r Coil					
Syste	m Name or Ide	ntification/Tag						
3	□Yes	□No		ations, or is installed	ed, or field installed and by methods/specific			
4	□Yes	□No	digital t	hermometer. The se	ed with a standard mi ensor mini plug is acc nging the airflow thr	essible	to the install	ing technician and
5	□Yes	□No	The sen	sor measures the sat	turation temperature	of the co	oil within 1.3	degrees F
	o 3, 4, and 5 is a if STMS are not		therwise	Enter enter Pass or Fail	✓ □ N/A	✓	□ Pass	✓ □ Fail
STM	S - Sensor on t	he Condenser	Coil					
Syste	m Name or Ide	ntification/Tag						
6	The sensor is factory installed, or field installed according to manufacturer's specifications, or is installed by methods/specifications approved by the Executive Director.							
7	□Yes	□No	The sensor wire is terminated with a standard mini plug suitable for connection to a digital thermometer. The sensor mini plug is accessible to the installing technician and the HERS rater without changing the airflow through the condenser coil					
8	□Yes	□No	The sen	sor measures the sat	uration temperature	of the co	oil within 1.3	degrees F
	o 6, 7, and 8 is a if STMS are not		otherwise	Enter enter Pass or Fail	✓ □ N/A	✓	□ Pass	<b>✓</b> □ Fail

INSTALLATION CERTIFICATE	CF-6R-MECH-25-HERS	
Refrigerant Charge Verification - Stand		(Page 2 of 5
Site Address:	Enforcement Agency:	Permit Number:
Standard Charge Measurement Procedure ( Procedures for determining Refrigerant Charge usin Residential Appendix RA3.2. As many as 4 systems additional form(s) for any additional systems in the The system should be installed and charged in the the system must meet minimum airflow require If outdoor air dry-bulb is 55 F or below, the in Space Conditioning Systems	ng the Standard Charge Measurement Proo in the dwelling can be documented for com dwelling as applicable. accordance with the manufacturer's specif ments as prerequisite for a valid refrigera	cedure are available in Reference apliance using this form. Attach an actions before starting this procedure. In the charge test.
System Name or Identification/Tag		
System Location or Area Served		
Outdoor Unit Serial #		
Outdoor Unit Make		
Outdoor Unit Model		
Nominal Cooling Capacity Btu/hr		
Date of Verification		
Calibration of Diagnostic Instruments		·
Date of Refrigerant Gauge Calibration		(must be re-calibrated monthly)
Date of Thermocouple Calibration		(must be re-calibrated monthly)
Measured Temperatures (°F)		
System Name or Identification/Tag		
Supply (evaporator leaving) air dry-bulb		
temperature (T <sub>supply</sub> , db)		
Return (evaporator entering) air dry-bulb		
emperature (T <sub>return</sub> , db)		
Return (evaporator entering) air wet-bulb		
temperature (T <sub>return</sub> , wb)		
Evaporator saturation temperature		
(Tevaporator, sat)		
Condensor saturation temperature		
(T <sub>condensor</sub> , sat)		
Suction line temperature (T <sub>suction</sub> )		
Liquid Line Temperature (T <sub>liquid</sub> )		
Condenser (entering) air dry-bulb		
temperature (T <sub>condenser, db</sub> )		
Registration Number: 2008 Residential Compliance Forms	Registration Date/Time:	HERS Provider: August 200

INSTALLATION CERTIFICATE			CF 6D	MECH-25-HERS
Refrigerant Charge Verification - Star	ndard Measurem	ent Procedure	Cr-uk-	(Page 3 of 5)
Site Address:		Enforcement Agency:	Permit Nu	
Minimum Airflow Requirement				
Temperature Split Method Calculations for Verification. The temperature split method				rigerant Charge
System Name or Identification/Tag				
Calculate: Actual Temperature Split = $T_{return, db}$ - $T_{supply, db}$				
Target Temperature Split from Table RA3.2-3 using T <sub>return</sub> , wb and T <sub>return</sub> , db				
Calculate difference: Actual Temperature Split – Target Temperature Split =				
Passes if difference is between -3°F and +3°F or, upon remeasurement, if between -3°F and -100°F <b>Enter Pass or Fail</b>				
Note: Temperature Split Method Calculation airflow measurement procedures specified in measured, the value must be equal to or great	ı Reference Residen	tial Appendix RA3.3.	If actual cooling	coil airflow is
Calculated Minimum Airflow Requirement	nt (CFM) = Nomi	nal Cooling Capacit	y (ton) X 300 (cf	m/ton)
System Name or Identification/Tag				
Calculated Minimum Airflow Requirement (CFM)				
Measured Airflow using RA3.3 procedures (CFM)				
Passes if measured airflow is greater than or equal to the calculated minimum airflow requirement. Enter Pass or Fail				
Superheat Charge Method Calculations for	on Dofniconent Ch	ngo Vorification Th	nie procedure ie ==:	uired to be used for
fixed orifice metering device systems	or Kerrigerant Cha	irge vernication. 11	ns procedure is rec	quired to be used for
System Name or Identification/Tag				
Calculate: Actual Superheat =				
T <sub>suction</sub> - T <sub>evaporator</sub> , sat				
Target Superheat from Table RA3.2-2				
using T <sub>return</sub> , wb and T <sub>condenser</sub> , db  Calculate difference:				
Actual Superheat – Target Superheat =				
System passes if difference is between -5°F and +5°F Enter Pass or Fail				
<del></del>				

Registration Number: \_\_\_\_\_\_2008 Residential Compliance Forms \_ Registration Date/Time: \_\_\_\_\_\_ HERS Provider: \_\_ August 2009

INSTALLATION CERTIFICATE	CF-6R-MECH-25-HERS			
Refrigerant Charge Verification - Standa Site Address:	(Page 4 of Permit Number:			
She Address:		Enforcement Agency:	Permit Nu	mber:
Subcooling Charge Method Calculations for for thermostatic expansion valve (TXV) and ele				quired to be used
System Name or Identification/Tag				
Calculate: Actual Subcooling =				
T <sub>condenser, Sat</sub> – T <sub>liquid</sub> Target Subcooling specified by				
manufacturer				
Calculate difference: Actual Subcooling – Target Subcooling =				
System passes if difference is between				
-3°F and +3°F Enter Pass or Fail				
Metering Device Calculations for Refrigerant				used for
thermostatic expansion valve (TXV) and electron System Name or Identification/Tag	onic expansion v	Yaive (EXV) systems.		
Calculate: Actual Superheat =				
T <sub>suction</sub> - T <sub>evaporator</sub> , sat				
Enter allowable superheat range from				
manufacturer's specifications (or use range between 4°F and 25°F if manufacturer's				
specification is not available)				
System passes if actual superheat is within				
the allowable superheat range  Enter Pass or Fail				
Registration Number:	Registration 1	Date/Time:	HERS Pro	vider: August 2009

INSTALLATION CERTIFICATE	CF-6R-N	MECH-25-HERS		
Refrigerant Charge Verification - Star	ndard Measurem	ent Procedure		(Page 5 of 5)
Site Address:	Permit Nur	nber:		
Standard Charge Measurement Summary	¥7.*			
System shall pass both refrigerant charge co		ice criteria (if annlic	able) and minimum	cooling coil
airflow criteria based on measurements take				
applicable verification criteria must be re-n	_	0 1	. If corrective action	is were taken, an
System Name or Identification/Tag				
System Name of Identification/ rag				
System meets all refrigerant charge and				
airflow requirements. Enter Pass or Fail				

## **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).
- I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.
- I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am
  required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also
  perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS
  rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and
  additional checking/testing of other installations in that HERS sample group will be performed at my expense.
- I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.
- I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives, and beginning October 1, 2010, for all low-rise residential buildings.

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)					
Responsible Person's Name:		Responsible Person's Signature:			
•					
CSLB License:	Date Signed:	Position With Company (Title):			
CSDS Di <b>ce</b> nse.	Butt Signed.	1 solution (1 ma).			
T 41: 1 4 11 4: 11 TPI: 1 P		Name of TROCR (if analisable).			
Is this installation monitored by a Third P		Name of TPQCP (if applicable):			
Program (TPQCP)?	$\square$ Yes $\square$ No				

Registration Date/Time: \_\_\_\_\_

Registration Number: \_\_\_

INS	INSTALLATION CERTIFICATE CF-6R-MECH-26-HERS							
							(Page 1 of 2)	
Site Address:					<b>Enforcement Agency:</b>		Permit Nur	nber:
	any as 4 systems additional systen				ompliance using this f	orm. At	tach an addi	tional form(s) for
					turation Temperature			
					esidential Appendix RA liance. STMS are only			
					ve compliance method.		ea jor compi	ivery new or
TMA	H - Access Hol	les in Supply	and Retu	urn Plenums of A	ir Handler			
Syste	m Name or Ider	ntification/Tag	5					
Syste	m Location or A	Area Served						
1	□Yes	□No			s hole upstream of evapure in Section RA3.2.2		coil in the re	eturn plenum and
2	□Yes	□No	5/16 i	nch (8 mm) access	s hole downstream of e Figure in Section RA	vaporati		e supply plenum
Yes t	o 1 and 2 is a pa	ass.	<u> </u>		Enter Pass or Fail	✓	□ Pass	✓ □ Fail
	S - Sensor on t		r Coil			1		
Syste	m Name or Ider	numcation/ rag						
3	□Yes	□No		ations, or is instal	alled, or field installed led by methods/specific			
4	□Yes	□No	digital t	hermometer. The	ated with a standard m sensor mini plug is ac nanging the airflow thr	cessible	to the install	ling technician and
5	□Yes	□No	The sen	sor measures the	saturation temperature	of the co	oil within 1.3	degrees F
	o 3, 4, and 5 is a if STMS are not		Otherwise	Enter enter Pass or Fail	- I - √ - I I N / Λ	<b>✓</b>	□ Pass	✓ □ Fail
STM	S - Sensor on t	he Condenser	· Coil					
	m Name or Ider							
			The sen	usor is factory insta	alled, or field installed	accordii	ng to manufa	cturer's
6	□Yes	□No		cations, or is instal	led by methods/specific			
7	□Yes	□No	digital t	hermometer. The	ated with a standard m sensor mini plug is ac nanging the airflow thr	cessible	to the instal	ling technician and
8	□Yes	□No	The sen	sor measures the	saturation temperature	of the co	oil within 1.3	degrees F
Yes to 6, 7, and 8 is a pass. Enter N/A if STMS are not applicable. Otherwise enter Pass or Fail ✓ □ N/A ✓ □ Pass ✓ □ Fail					✓ □ Fail			
Regist	tration Number: _			Registration	Date/Time:		_ HERS Prov	ider:
2008 Residential Compliance Forms							August 2009	

INSTALLATION CERTIFICATE				CF-6F	R-MECH-26-HERS		
Refrigerant Charge Verification - Alternate Measurement Procedure (Page 2 o							
Site Address:		_	rcement Agency:	Permit 1	Number:		
Alternate Charge Measurement Procedure (for use if outdoor air dry-bulb is below 55 °F)  Procedures for Determining Refrigerant Charge using the Alternate Method are available in Reference Residential Appendix RA3.2. As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.  • The alternative charge measurement procedure requires that the system shall be installed and charged in accordance with the manufacturer's specifications for refrigerant charge using the weigh-in charging method.  • Installer verification of line lengths and charge adjustment calculation must be documented on CF-6R before starting this procedure.  • If outdoor air dry-bulb is 55 °F or above, installer must use the Standard Charge Measure Procedure.							
Weigh-In Charging Method for Refrigerant C	harge Verif	icatior	1				
System Name or Identification/Tag							
System Location or Area Served							
Actual liquid line length (ft)							
Manufacturer's Standard liquid line length (ft)							
Calculate: difference in length (ft) = Actual length – Standard length							
Manufacturer's correction factor							
(ounces per foot)  Calculate: charge adjustment							
= correction factor X difference in length							
Alternate Charge Measurement Summary:							
System refrigerant charge has been adjusted to							
meet the manufacturer's specifications based on actual line length <b>Enter Pass or Fail</b>							
DECLARATION STATEMENT			<u> </u>				
I certify under penalty of perjury, under the laws of	f the State of 0	Californ	ia, the information p	rovided on this f	form is true and correct.		
I am eligible under Division 3 of the Business and representative of the person responsible for constru	Professions C	ode to	accept responsibility				
	• I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the						
<ul> <li>I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</li> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.</li> </ul>							
<ul> <li>I will ensure that a completed, signed copy of the permit(s) issued for the building, and made avaithat a signed copy of this Installation Certificate building owner at occupancy. I will ensure that a multiple orientation alternatives, and beginning Oc</li> </ul>	ilable to the e e is required t all Installation	enforce to be in Certifi	ment agency for all a cluded with the doc cates will come from	applicable inspe umentation the a HERS provide	ections. I understand builder provides to the		

Company Name: (Installing Subcontractor or General Contractor or Builder/Owner) Responsible Person's Name: Responsible Person's Signature: CSLB License: Position With Company (Title): Date Signed: Registration Number: \_\_\_\_\_2008 Residential Compliance Forms Registration Date/Time: \_ \_ HERS Provider: \_

INS'	TALLATION CERTIFICATE			CF-6R-MECH-27-HER		
	imum Rated Total Cooling Capacity			(Page 1 of 2)		
Site A	Address:	Enfo	rcement Agency:	Permit Number:		
Proce given Comp rating requi the E.	imum Rated Total Cooling Capacity (MR) adures for calculating the Maximum Rated Total Coin Reference Residential Appendix RA1. The valuation of the Capacity (CF-1R). Compliance with this credit requivant at ARI conditions that is equal or less than the Maximum for duct leakage, and prescriptive cooling ER must be verified. As many as 4 systems in the capacity of the systems in the dwelling as approximately approximately systems in the dwelling as approximately contains the systems in the systems	Cooling Capacity (MI ue is calculated by the uires that the installee URTCC compliance co to coil airflow complia dwelling can be docu	RTCC) compliance create compliance software despace conditioning system that value. The system ance credits, and if the E	and given on the Certificate of stem must have a cooling capacity must also meet the HERS verificatio Electrical Input Exception is utilized,		
1	System Name or Identification/Tag					
2	System Location or Area Served					
3a	ARI Rated Total Cooling Capacity of the installed system (Btu/hr)					
3b	Sum of the ARI Rated Total Cooling Capacities of multiple systems installed in the dwelling (Btu/hr), if applicable.			1		
value	MRTCC credit may be calculated for the whole of from the CF-1R is for the entire dwelling, and the Cooling Capacities of the installed cooling system	ere are multiple cooli	ng systems installed in t	he dwelling, then the sum of ARI		
4a	MRTCC target value from the CF-1R (Btu/hr) – if for individual systems					
4b	MRTCC target value from the CF-1R (Btu/hr) – if total for entire dwelling					
5	If the applicable row 3 value is less than or equal to the applicable row 4 value, the unit complies.  If the unit complies enter Pass					
Electi value	trical Input Exception for MRTCC complication in the compliance of the compliance credit of the electrical input of the system. For buildings with more than one cool	lit allows the installe oversized cooling sy	stem is less than or equ	al to the electrical input of a standar		
1	System Name or Identification/Tag					
2	System Location or Area Served					
6	ARI Rated EER of the installed unit (Btu/Watt-hr)					
7a	Calculate Proposed Electrical Input <sup>7</sup>					
7b	Sum of the Proposed Electrical Input values for entire multiple systems installed in the dwelling (Watt), if applicable.			-		
8a	Calculate Standard Total Electric Input <sup>8</sup> (Watt) – if for individual systems					
8b	Calculate Standard Total Electric Input <sup>8</sup> (Watt) – if total for entire dwelling			·		
9	If the applicable row 7 value is less than or equal to the applicable row 8 value, the unit complies.  If the unit complies enter Pass					
	tration Number: Residential Compliance Forms	_Registration Date/I	Fime:	HERS Provider: August 200		

INSTALLATION CERTIFICAT	CF-6R-MECH-27-HERS					
<b>Maximum Rated Total Cooling (</b>	(Page 2 of 2)					
Site Address:		<b>Enforcement Agency:</b>	Permit Number:			
AT .			1			
Notes: 7) Proposed Electrical Input (Watt) = AF Conditioner is listed in the ARI database w						
Otherwise, if the proposed Air Conditioner either:	-					
Proposed Electrical Input (Watt) Rated Total Cooling Capacity (B		ing Capacity (Btu/hr) / ARI Rated u)];	EER (Btu/Watt-hr)] +[(ARI			
or						
Rated Total Cooling Capacity (B	stu/hr) x .0122 (Watt-hr/Bt	ing Capacity (Btu/hr) / ARI Rated u)] + The measured fan power (W 50 CFM per ton using the procedu	att); where the measured fan			
8) Standard Total Electric Input (Watt) =	MRTCC target from the C	CF-1R (Btu/hr) / 10 (Btu/Watt-hr)				
☐ Systems must meet the Cooling Co☐ Systems must meet the Duct Sealir☐ Systems must meet the HERS verifies with the MTRCC compliance credit DECLARATION STATEMENT	ng HERS verification red	quirements in order to receive	credit for MRTCC.			
• I certify under penalty of perjury, unde	r the laws of the State of C	alifornia, the information provide	d on this form is true and correct.			
• I am eligible under Division 3 of the B representative of the person responsible			nstruction, or an authorized			
<ul> <li>I certify that the installed features, mate conforms to all applicable codes and re- enforcement agency.</li> </ul>						
I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.  I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.						
I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives, and beginning October 1, 2010, for all low-rise residential buildings.						
Company Name: (Installing Subcontractor	r or General Contractor or	Builder/Owner)				
Responsible Person's Name:		Responsible Person's Signature:				
CSLB License:	Date Signed:	Position With Company (Title):				

\_\_ Registration Date/Time: \_\_\_

\_\_\_\_\_ HERS Provider: \_

INSTALLATION CERTIFICATE CF-6R-MECH-28-HERS							
Low Leakage Air Handler Verifi	Low Leakage Air Handler Verification (Page 1 of						
Site Address: Enforcement Agency: Permit Number:							
Verified Low Leakage Air Handler (LLAH) with Sealed and Tested Duct System An additional compliance credit is available for verified low leakage ducts if a Low Leakage Air Handler is installed. The air handler must be connected to a Sealed and Tested New Duct System to receive the credit. Refer to Residential Appendix RA3.1.4.3.10. As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.							
System Name or Identification/Tag							
System Location or Area Served							
LLAH Unit Make							
LLAH Unit Model							
Tested Ducts in order to receive comp  ☐ The LLAH cabinet (furnace or healess of its nominal air conditioning cfroutlets, and condensate drain port(s) see	☐ The LLAH must be connected to a New Duct System that meets the HERS verification requirement for Sealed and Tested Ducts in order to receive compliance credit.  ☐ The LLAH cabinet (furnace or heat pump fan and inside coil) must be certified to the Commission to leak 2 percent or less of its nominal air conditioning cfm delivered when pressurized to 1-inch water gauge with all present air inlets, air outlets, and condensate drain port(s) sealed.						
If the installed LLAH documentation confirms the unit meets the certification requirement and Duct Testing is specified on the CF-1R, the unit complies.  If the unit complies enter Pass							
DECLARATION STATEMENT							
<ul> <li>I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.</li> <li>I am eligible under Division 3 of the Business and Professions Code to accept responsibility for construction, or an authorized representative of the person responsible for construction (responsible person).</li> <li>I certify that the installed features, materials, components, or manufactured devices identified on this certificate (the installation) conforms to all applicable codes and regulations, and the installation is consistent with the plans and specifications approved by the enforcement agency.</li> <li>I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</li> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.</li> <li>I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation</li></ul>							
Company Name: (Installing Subcontracto	r or General Contractor or	Builder/Owner)					
Responsible Person's Name:		Responsible Person's Signature	:				
CSLB License: Date Signed: Position With Company (Title):							
Registration Number:	Registratio	n Date/Time:	HERS Provider:				

		N CERTIFICATE			CF-6R-		I-29-HERS
		mpliance Credits - Location; Surface	•				Page 1 of 2
Site Address:	:		Enforcement Agency:		Permit Nu	mber:	
F . 1 F		V VI (6) 1 (7)					
		tem Name or Identification/Tag:					
		tem Location or Area Served:					
Note: Submi	it one	Installation Certificate for each duct system	that must demonstrate of	compl	iance in the	dwellin	ıg.
		T LOCATION COMPLIANCE CI for supply duct systems entirely in condition		ed sui	face area ir	ı uncon	ditioned
	deta	12 LINEAR FEET OF SUPPLY DUCT OF led duct design is not required for compliancies measure.					
□Yes □N	No	Less than 12 linear feet of supply duct outsi	•		_		_
		Yes to this compli	ance credit is a pass	✓	□ Pass	✓ □	l Fail
		TS LOCATED IN CONDITIONED SPACe ompliance with this measure. HERS verificat					-
	No	Ducts are located within the conditioned volume					
		Yes to this compli	ance credit is a pass	✓	□ Pass	✓ □	l Fail
							nstaller, and
agency, entere testing for this	ed into s group	be verified by a HERS rater. The size, R-value, a cribing if ducts are buried in attic insulation must the compliance software, and shown on the CF-L of compliance credits are described in Reference	be shown in the design d R for the building. Proced Residential Appendix RA	rawing dures j	gs approved b	ditioned by the en	l space forcement
agency, entere testing for this  SUPPLY	ed into s group	cribing if ducts are buried in attic insulation must the compliance software, and shown on the CF-1. of compliance credits are described in Reference T SURFACE AREA REDUCTION COM	be shown in the design d R for the building. Proce Residential Appendix RA PLIANCE CREDIT	rawing dures j	gs approved b	ditioned by the en	l space forcement
agency, entere testing for this  SUPPLY  Yes	ed into s group	cribing if ducts are buried in attic insulation must the compliance software, and shown on the CF-L of compliance credits are described in Reference T SURFACE AREA REDUCTION COMPRESCRIPTIVE Cooling Coil Airflow compliance has The building's duct system design was approved	be shown in the design d R for the building. Proce. Residential Appendix RA PLIANCE CREDIT s been verified. by the enforcement agence	rawing dures j 3.1	gs approved by for field verified verified the field verified the field the field were field the field the field with the field the fiel	ditioned by the en ication a	l space forcement nd diagnostic
agency, entere testing for this  SUPPLY  Yes  Yes	ed into s group DUC No	the compliance software, and shown on the CF-1L of compliance credits are described in Reference T SURFACE AREA REDUCTION COMPRESCRIPTION COMPRESCRIPTION COMPRESCRIPTION COMPRESCRIPTION GOID Airflow compliance has the building's duct system design was approved in the special features section of the CF-1R approximate installed duct system does not have severely	be shown in the design design of the building. Procedure Residential Appendix RAPLIANCE CREDIT as been verified.  By the enforcement agencies by the enforcement agencies of the second	rawing dures j 3.1	gs approved by for field verifield verifield the the duct system.	editioned by the en ication a	I space forcement nd diagnostic gn is detailed
agency, entere testing for this  SUPPLY  Yes  Yes  Yes	ed into s group DUC No	cribing if ducts are buried in attic insulation must the compliance software, and shown on the CF-1L of compliance credits are described in Reference T SURFACE AREA REDUCTION COMPRESCRIPTION	be shown in the design design of the building. Process Residential Appendix RASPLIANCE CREDIT is been verified. By the enforcement agency wed by the enforcement at twisted or compressed sees sizes and locations of supply tagency, and the installed	ey, and agency ctions	gs approved befor field verified the duct syst. that would return registe system meets	em designation and the control of th	I space forcement nd diagnostic gn is detailed quired the duct
agency, entere testing for this  SUPPLY  Yes  Yes  Yes	DUC No No	the compliance software, and shown on the CF-12 of compliance credits are described in Reference of Compliance of	be shown in the design design of the building. Process Residential Appendix RASPLIANCE CREDIT is been verified. By the enforcement agency wed by the enforcement at twisted or compressed sees sizes and locations of supply tagency, and the installed	rawing dures j. 3.1  ey, and agency ctions ply & 1 duct 4.1.1.	gs approved befor field verified the duct syst. that would return registe system meets	em designation and the requirement of the requireme	I space forcement and diagnostic gn is detailed quired the duct
agency, entere testing for this  SUPPLY  Yes  Yes  Yes	DUC No No	the compliance software, and shown on the CF-12 of compliance credits are described in Reference of Compliance of	be shown in the design design of the building. Procedure Residential Appendix RASE PLIANCE CREDIT is been verified.  by the enforcement agencies been been designed by the enforcement at twisted or compressed sets and locations of supply the agency, and the installed idential Appendix RA3.1.	rawing dures j. 3.1  ey, and agency ctions ply & 1 duct 4.1.1.	gs approved befor field verified the duct system meets	em designation and the requirement of the requireme	d space forcement and diagnostic gn is detailed quired the duct airements for
agency, entere testing for this  SUPPLY  Yes  Yes  Yes	DUC No No	the compliance software, and shown on the CF-12 of compliance credits are described in Reference of Compliance of	be shown in the design design of the building. Procedure Residential Appendix RASE PLIANCE CREDIT is been verified.  by the enforcement agencies been been designed by the enforcement at twisted or compressed sets and locations of supply the agency, and the installed idential Appendix RA3.1.	rawing dures j. 3.1  ey, and agency ctions ply & 1 duct 4.1.1.	gs approved befor field verified the duct system meets	em designation and the requirement of the requireme	d space forcement and diagnostic gn is detailed quired the duct airements for
agency, entere testing for this  SUPPLY  Yes  Yes  Yes	DUC No No	the compliance software, and shown on the CF-12 of compliance credits are described in Reference of Compliance of	be shown in the design design of the building. Procedure Residential Appendix RASE PLIANCE CREDIT is been verified.  by the enforcement agencies been been designed by the enforcement at twisted or compressed sets and locations of supply the agency, and the installed idential Appendix RA3.1.	rawing dures j. 3.1  ey, and agency ctions ply & 1 duct 4.1.1.	gs approved befor field verified the duct system meets	em designation and the requirement of the requireme	d space forcement and diagnostic gn is detailed quired the duct airements for
agency, entere testing for this  SUPPLY  Yes  Yes  Yes	DUC No No	the compliance software, and shown on the CF-12 of compliance credits are described in Reference of Compliance of	be shown in the design design of the building. Procedure Residential Appendix RASE PLIANCE CREDIT is been verified.  by the enforcement agencies been been designed by the enforcement at twisted or compressed sets and locations of supply the agency, and the installed idential Appendix RA3.1.	rawing dures j. 3.1  ey, and agency ctions ply & 1 duct 4.1.1.	gs approved befor field verified the duct system meets	em designation and the requirement of the requireme	d space forcement and diagnostic gn is detailed quired the duct airements for
agency, entere testing for this  SUPPLY  Yes  Yes  Yes	DUC No No	the compliance software, and shown on the CF-12 of compliance credits are described in Reference of Compliance of	be shown in the design design of the building. Procedure Residential Appendix RASE PLIANCE CREDIT is been verified.  by the enforcement agencies been been designed by the enforcement at twisted or compressed sets and locations of supply the agency, and the installed idential Appendix RA3.1.	rawing dures j. 3.1  ey, and agency ctions ply & 1 duct 4.1.1.	gs approved befor field verified the duct system meets	em designation and the requirement of the requireme	d space forcement and diagnostic gn is detailed quired the duct airements for

TNICTEAT			DE			CE (D. MECI	I 40 HEDG
		ON CERTIFICAT	TE s - Location; Surface	Amon D-x	ralma	CF-6R-MECH	
Supply Site Addi		omphance Cremi	s - Location; Surface	Enforceme		Permit Number:	Page 2 of 2)
Ditt Auu	Coo.			Emorceme	int Agency.	I climit Number.	
In order the approapproved	to claim ci ved duct d duct desig	redit for buried ducts of lesign must identify wh gn. Also, the duct syste ion requirements.	LING R-VALUE COM on the ceiling, the condition which portions of the duct system must meet prescriptive I	s for the Sup tem are "Bur Duct Leakage	oly Duct Surface Area ied", and the installed test requirements and	duct system must coll the building must r	onform to the neet Quality
□Yes	□ No		ses the Supply Duct Surface on and on the approved CF-1				
□Yes	□ No	Meets Verified Duct	Leakage requirements				
□Yes	□ No	Meets Verified Qual	ity Insulation Installation re	equirements			
					Yes to all is a pa	nss  ✓ □ Pass	✓ 🗆 Fail
conform to meet Qua	o the appr lity Insula No	roved duct design. Also tion Installation required. The duct design pass approved duct design design drawings.	ses the Supply Duct Surface n and on the approved CF-1	et prescriptive	e Duct Leakage test re	quirements and the	building must
□Yes	☐ No	1	Leakage requirements				
□Yes	□ No	Meets Verified Qual	ity Insulation Installation re	equirements	ı	T.	<u> </u>
					Yes to all is a pas	ss	✓ 🗖 Fail
<ul><li>I certi</li><li>I am e repres</li></ul>	fy under p ligible und entative o	der Division 3 of the E f the person responsible	er the laws of the State of C Business and Professions Co le for construction (respons terials, components, or man	ode to accept ible person).	responsibility for cons	struction, or an auth	orized
confor enforc	rms to all a cement age	applicable codes and reency.	egulations, and the installat	ion is consist	ent with the plans and	specifications appr	oved by the
<ul> <li>I understand that a HERS rater will check the installation to verify compliance, and that that if such checking identifies defects, I am required to take corrective action at my expense. I understand that Energy Commission and HERS provider representatives will also perform quality assurance checking of installations, including those approved as part of a sample group but not checked by a HERS rater, and if those installations fail to meet the requirements of such quality assurance checking, the required corrective action and additional checking/testing of other installations in that HERS sample group will be performed at my expense.</li> <li>I reviewed a copy of the Certificate of Compliance (CF-1R) form approved by the enforcement agency that identifies the specific requirements for the installation. I certify that the requirements detailed on the CF-1R that apply to the installation have been met.</li> <li>I will ensure that a completed, signed copy of this Installation Certificate shall be posted, or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Installation Certificate is required to be included with the documentation the builder provides to the building owner at occupancy. I will ensure that all Installation Certificates will come from a HERS provider data registry for multiple orientation alternatives, and beginning October 1, 2010, for all low-rise residential buildings.</li> </ul>							
		<del>-</del>	or or General Contractor or				
Responsit	ole Person	s Name:		Responsible	e Person's Signature:		
CSLB Lic	ense:		Date Signed:	Position Wi	th Company (Title):		

# CF-4R – ENVELOPE CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING

	CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-ENV-20							
	ng Envelope Sealing				ge 1 of 1)			
Site Add	lress:	<b>Enforcement Agency:</b>	Permit	Number:				
BUILDING ENVELOPE SEALING								
DOILD	Diagnostic Testing Results							
	$_{ m I}$ = the measured airflow in cubic feet per minute (cfm) at 50 819 x (CFM50 $_{ m H}/$ Conditioned Floor Area in ft $^2$ ) per Residen	pascals for the dwelling with air dis	tribution	registers uns	ealed.			
	Building Envelope Leakage $CFM50_H$ as measured	using a blower door diagnostic d	evice	✓	✓			
1.	Enter the blower door leakage <b>target</b> $CFM50_H$ <b>value</b> from the CF-1R (cfm).			1				
2.	Enter the blower door leakage <b>minimum</b> $CFM50_H$ verifrom the CF-1R (cfm).	alue corresponding to 1.5 SLA						
3.	Enter the <b>measured</b> $CFM50_H$ value from the blower		18	4				
4.	The leakage test passes if the measured envelope leak than or equal to the value required for compliance from		1	Pass	☐ Fail			
5.	If measured $CFM50_H$ from row 3 is less than the min 1.5 SLA from row 2: check/enter < 1.5 S	imum $CFM50_H$ value correspond SLA, otherwise check/enter $\geq 1.5$		<pre>1.5 SLA*</pre>	□ ≥1.5 SLA			
*Adviso	ory note to builder and enforcement agency: If row 5 is	ndicates "< 1.5 SLA", it is critica	l to ensu					
	d-fuel burning appliances in the dwelling are provided							
	nce with manufacturers' installation instructions and al							
	6.4. Additional information about compliance with the		1 4.6.5 01	f the Reside	ntıal			
DECLA	Compliance Manual under the topic of Combustion and Solid-Fuel Burning Appliances.  DECLARATION STATEMENT  • I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.							
	the certified HERS rater who performed the verification serv							
• The i	installed feature, material, component, or manufactured device installation) complies with the applicable requirements in Re iffied on the Certificate(s) of Compliance (CF-1R) approved by	ce requiring HERS verification that if ference Residential Appendices RA2	s identifie	ed on this cer	tificate			
• The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s) responsible for the installation conforms to the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the enforcement agency.								
Builder or Installer information as shown on the Installation Certificate (CF-6R)								
Compan	y Name: (Installing Subcontractor or General Contractor or	Builder/Owner)						
Respons	Responsible Person's Name:  CSLB License:							
HERS Provider Data Registry Information								
Sample (	Sample Group # (if applicable):  □ tested/verified dwelling in a HERS sample group							
	Rater Information	<u>'</u>						
HERS R	ater Company Name:							
Responsible Rater's Name Responsible Rater's Signature								

Date Signed:

Responsible Rater's Certification Number w/ this HERS Provider:

CERTIFICATE OF FIELD VERIFICATION AND DI	CF-4R-ENV-21	
<b>Quality Insulation Installation (QII) - Framing Stage C</b>	hecklist	(Page 1 of 2)
Site Address:	Enforcement Agency:	Permit Number:

## 1. Quality Insulation Installation (QII) - Framing Stage Checklist

Air barrier and preparation for insulation verification inspection must be done at framing stage before insulation is installed. If there are any "No" answers rows not filled out or signatures missing then this is not valid form and cannot be accepted by the building department or HERS rater. If spray foam is used an air barrier is not required NA would be checked. QII credit not allowed if any steel framing in the building including structural framing (Hardy Frame etc).

✓ FLC	OOR A	AIR BA	ARRIER
			All gaps in the raised floor to unconditioned space or to outside larger than 1/8" filled with foam or
Yes	No	NA	caulk. (NA if SPF)
			All openings on a second floor including under a tub where the drain penetrates the floor is sealed
Yes	No	NA	All openings on a second moor including under a tub where the drain penetrates the moor is sealed
✓ WA	LLS A	IR BA	RRIER
			All gaps in wall exterior sheathing to unconditioned space or to outside larger than 1/8" filled with
Yes	No	NA	foam or caulk. (NA if SPF)
			No gaps in sheathing against the garage, attic, or covered patio. All gaps larger than 1/8" filled with
Yes	No	NA	foam or caulk. (NA if SPF)
			All gaps in Rim-joists in interior and exterior walls to the outside including holes drilled for electrical
Yes	No	NA	and plumbing larger than 1/8" filled with foam or caulk. (NA if SPF)
			Rope caulk, foam gasket, or caulking bead around the entire sole plate of the home
Yes	No	NA	Rope caulk, rount gasket, or cauking bead around the cities sole plate of the nome
			All gaps around the windows are caulked or foamed (stuffing with fiberglass not acceptable)
Yes	No	NA	
✓ AT		1	
Van	□ Na	D NIA	Attic rulers appropriate to the material installed <b>evenly</b> throughout the attic to verify depth.
Yes	No	NA	(NA if SPF or batt)
Vos	□ No	□ NA	Square foot of attic / 250 = minimum number of rulers installed. Must round up.  Number of rulers actually installed (NA if SPF or batt)
Yes		INA.	Number of fulers actually installed(NA ii SPF of batt)
Yes	No	NA	ALL rulers visible from attic access.(NA if SPF or batt)
			Eave vents baffles installed at all eave vents to prevent air movement under or into insulation.
Yes	No	NA	(NA if SPF)
			Area of eave vent baffle is the same or larger than the net free-ventilation area of the eave vent. (NA
Yes	No	NA	if SPF)
			BARRIER
Yes	No	NA	All draft stops in place to form a continuous ceiling air barrier no gaps larger than 1/8". (NA if SPF)
			All drops covered with hard covers. Gaps around or in the hard cover larger than 1/8" filled with
Yes	No	NA	foam or caulk. (NA if SPF).
			All recessed light fixtures in non conditioned space IC and air tight (AT)
Yes	No		Thi recessed light fixtures in non-conditioned space to and all tight (111)
			All recessed light fixtures are sealed with a gasket or caulk between the housing and the ceiling
Yes	No		
			Openings around flue shafts fully sealed with solid blocking or flashing and any remaining gaps
Yes	No		sealed with fire-rated caulk or sealant.
Vac	□ No		Piping shafts openings fully sealed and caulked
Yes	No		
Yes	No		Penetrations from wiring in interior walls, electrical boxes, fire alarms etc. sealed with caulk or sealant
			All duct chases, fireplace chases, and double walls sealed air tight at the ceiling level.
			All gaps into shafts larger than 1/8" filled with foam or caulk. Special attention paid to ducts entering
Yes	No		shafts from ceiling.
	1		John Coming.

Registration Number:	Registration Date/Time:	HERS Provider:
2008 Residential Compliance Forms		August 2009

CERT	<b>IFIC</b>	ATE (	OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-ENV-21		
Qualit	y Inst	n Installation (QII) - Framing Stage Checklist (Page 2 of 2)			
Site Ad	dress:		Enforcement Agency: Permit Number:		
✓ GA	RAGE	E ROO	OF/CEILING AIR BARRIER FOR TWO STORIES (no conditioned space over garage)		
		П	Air barrier installed at joists in garage to house transition (between floors). No gaps larger than 1/8".		
Yes	No.	ΝA	If SPF used then air barrier installed gaps not required to be filled. (NA if SPF or conditioned space		
			over garage)		
✓ GARAGE ROOF/CEILING AIR BARRIER FOR TWO STORIES (conditioned space over garage)					
			If insulation is to be installed at subfloor then subfloor has no gaps over 1/8". Air barrier installed at		
Yes	No	NA	joists in garage to house transition (between floors). (NA if SPF or no conditioned space over garage)		
			f insulation is to be installed at ceiling of garage then ceiling and joists to the outside have no gaps		
Yes	No	NA	over 1/8". (NA if SPF or no conditioned space over garage.)		

# SAMPLE FORMOWING

### DECLARATION STATEMENT

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am the certified HERS rater who performed the verification services identified and reported on this certificate (responsible rater).
- The installed feature, material, component, or manufactured device requiring HERS verification that is identified on this certificate (the installation) complies with the applicable requirements in Reference Residential Appendices RA2 and RA3 and the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the local enforcement agency.
- The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s) responsible for the installation conforms to the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the enforcement agency.

emoreoment agency.						
Builder or Installer information as shown on the Installation Cer	rtificate (CF-6R)					
Company Name: (Installing Subcontractor or General Contractor or	Builder/Owner)					
Responsible Person's Name:	CSLB License:					
HERS Provider Data Registry Information						
Sample Group # (if applicable):	☐ tested/verified dwelling	□ not-tested/verified dwelling				
		in a HERS sample group				
HERS Rater Information						
HERS Rater Company Name:						
Responsible Rater's Name	Responsible Rater's Signature					
Responsible Rater's Certification Number w/ this HERS Provider:	Date Signed:					
Designation Numbers Designation	n Data/Timas	HEDC Drawidan				

			OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-ENV-22
_		ulatio	on Installation (QII) - Insulation Stage Checklist (Page 1 of 3)
Site Ac	ldress:		Enforcement Agency: Permit Number:
OH and	di4	allama	I if any steel framing in the building including atmost and framing (Handy Framing etc.)
			l if any steel framing in the building including structural framing (Hardy Framing etc.).  Checklist
FLOO			
☐ Yes	□ No	D NA	All floor joist cavity insulation installed to uniformly fit the cavity side-to-side and end-to-end. (NA if floors slab on grade).
☐ Yes	No	D NA	Insulation in full contact with the subfloor, NO gaps. (NA if floors are slab on grade).
☐ Yes	No	NA NA	Insulation in contact with air barrier on all five sides. (ends, sides, back). NA if floors are slab on grade.
☐ Yes	No	D NA	Batts cut to fit around wiring and plumbing, or split (delaminated). (NA if loose fill, SPF, or slab on grade).
	No No	NA NA	Batt insulation has continuous support. (NA if loose fill, SPF, or slab on grade).
Yes			Insulation R-value same or greater that listed on CF-1R.
Yes	No	NA 🗆	SPF insulation properly adhered to avoid gaps and provide an air seal
Yes □	No 🗆	NA	SPF (Spray Polyurethane Foam Medium Density) insulation the average thickness is equal to or greater than that
Yes	No	NA	listed on the CF-1R and the minimum thickness shall be no more than ½ inch less than the required thickness for the R-value. (NA for other forms of insulation).
□ Yes	□ No	□ NA	SPF list the required floor cavity R-value from CF-1R, R List tested average depth of insulation in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other
			forms of insulation)  Measure thickness of insulation in 6 random measurements. Must be within ½ inch of the required depth.
Yes	No	NA	ineasure unexitess of insulation in oralidon measurements. Measure within 72 men of the required depth.
XX7.A	T T TN	ICTIT A	TION
			Standard depth cavities insulation fills cavity and touches air barrier on all six sides. (NA if SPF used and meets
Yes	No 🗆	NA 🗆	the required R-value).  All double walls and bump-outs, the insulation fills the cavity or additional air barrier installed so that the
Yes	No	NA	insulation fills the cavity. Insulation touches all six sides. (NA if SPF used and meets the required R-value).
□ Yes	□ No		Behind tub/shower, walls under stairs, and fireplace, insulation touches air barrier on five sides. Not required to fill the space. Cavity required to be air tight.
□ Yes	□ No	□ NA	BATTS, not a single void/depression deeper than ¾" in ANY stud bay. (NA if loose fill or SPF)
□ Yes	□ No	□ NA	<b>BATTS</b> , voids/depressions less than 3/4" allowed as long as the area is not greater than 10% of the surface area for each stud bay. (NA if loose fill or SPF).
□ Yes	□ No	□ NA	Loose Fill no gaps or voids of any depth allowed. (NA if batts or SPF).
□ Yes	□ No		Any gaps between studs or insulation larger than 1/8" must be filled with insulation or foam.
☐ Yes	□ No		All Rim-joists to the outside insulated.
	D No		Special attention must be paid to corner channels, wall intersections, and behind tub/shower enclosures insulated to proper R-Value.
Yes		D NIA	All skylight shafts and attic kneewalls insulated with minimum R-19.
Yes	No D	NA D	Insulation in <b>full</b> contact with drywall or wall finish of skylight shafts and attic kneewalls.
Yes	No	NA	
□ Yes	□ No		Wall insulation same or better than what is listed on the CF-1R.
□ Yes	□ No	□ NA	SPF insulation properly adhered to avoid gaps and provide an air seal

CERT	ΓIFIC	ATE (	OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-ENV-22
Quali	ty Ins	ulatio	n Installation (QII) - Insulation Stage Checklist (Page 2 of 3)
Site Ad	ldress:		Enforcement Agency: Permit Number:
			SPF (Spray Polyurethane Foam Medium Density) insulation the average thickness is equal to or greater than that
Yes	No	NA	listed on the CF-1R and the minimum thickness shall be no more than ½ inch less than the required thickness for
	_		the R-value. (NA for other forms of insulation).  SPF list the required floor cavity R-value from CF-1R, R List tested average depth of insulation in
□ I			SPF list the required floor cavity R-value from CF-1R, R List tested average depth of insulation in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other
Yes	No	NA	forms of insulation)
			,
Yes	No	NA	Measure thickness of insulation in 6 random measurements. Must be within ½ inch of the required depth
		3 INSU	ILATION
			<b>BATTS</b> there must not be a single gap/void/depression deeper than <sup>3</sup> / <sub>4</sub> ". (NA if loose fill or SPF).
Yes	No		
☐ Yes	□ No		<b>BATTS</b> voids/depressions less than 3/4" allowed as long as the area is not greater than 10% of the surface area for each stud bay. (NA if loose fill or SPF).
			.1
Yes	No	NA	NO gaps or voids allowed for loose fill and SPF. (NA if batts).
		1,11	
Yes	No		All ceiling insulation installed to uniformly fit the cavity side-to-side and end-to-end.
			Insulation in full contact with the ceiling, NO gaps.
Yes	No		insulation in fun contact with the centing, two gaps.
			Insulation in contact with air barrier on all five sides.
Yes	No		
Vac	□ No	NIA	Batts cut to fit around wiring and plumbing, or split (delaminated). (NA for loose fill or SPF).
Yes	No	NA 🗆	<b>Batts</b> taller than the trusses must expand so that they touch each other over the trusses. (NA for loose fill or
Yes	No	NA	SPF).
			SPF the average thickness is equal to or greater than that listed on the CF-1R and the minimum thickness shall
Yes	No	NA	be no more than ½ inch less than the required thickness for the R-value. (NA if loose fill or batts).
			Insulation fully fills cavity below any plywood platform or cat-walk. If SPF used then minimum 3 inches. (NA
Yes	No	NA	if no platforms or cat-walks)
			Attic caces polyated
Yes	No		Attic access gasketed
			Attic access insulated with rigid foam or batt insulation using adhesive or mechanical fastener. R-value same as
Yes	No		ceiling R-value listed on CF-1R
			Recessed light fixtures covered full depth with insulation. If SPF used then other forms of insulation used to
Yes	No		cover or enclosed in a box fabricated from ½-inch plywood, 18 ga. sheet metal, 1/4-inch hard board or drywall
			Wall insulation same or better than what is listed on the CF-1R
Yes	No		
□ V.			<b>Loose Fill</b> Insulation at proper depth – insulation rulers visible and indicating proper depth and R-value for
Yes	No	NA	blown in insulation. (NA for batts or SPF).
		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Loose Fill Insulation uniformly covers the entire ceiling (or roof) area from outside of all exterior walls. (NA
Yes	No	NA	for batts or SPF).
			Loose-fill mineral fiber insulation meets or exceeds manufacturer's minimum weight and thickness requirement
			for the target R-value. Target R-value Manufacturer's minimum required weight for the target R-value (pounds-per-square foot). Sample weight
Yes	No	NA	the target R-value (pounds-per-square foot). Sample weight (pounds per square foot).
			Manufacturer's minimum required thickness at time of installation (inches) Manufacturer's minimum required settled thickness (inches). Number of days since loose-fill insulation was
			installed (days). At the time of installation, the insulation shall be greater than or equal to the
			manufacturer's minimum initial insulation thickness. If the HERS rater does not verify the insulation at the time
Yes	No	NA	of installation, and if the loose-fill insulation has been in place less than seven days the thickness shall be greater
			than the manufacturer's minimum required thickness at the time of installation less 1/2 inch to account for
			settling. If the insulation has been in place for seven days or longer the insulation thickness shall be greater than or equal to the manufacturer's minimum required settled thickness. Minimum thickness measured (inches).
		İ	5. 54-20. 15 the manufacturer 5 minimum required society directions. Fillinging directions incustive (inclies).
Registr	ation N	umber:	Registration Date/Time:HERS Provider:

CF-4R-ENV-22  Quality Insulation Installation (QII) - Insulation Stage Checklist (Page 3 of 3)  Site Address: Enforcement Agency: Permit Number:						
Comparison of the Revalue (NA for other forms of insulation)   SPF list the required floor cavity Revalue from CF-1R, Radius (NA for other forms of insulation)   SPF list the required floor cavity Revalue from CF-1R, Radius (NA for other forms of insulation)   NA						CF-4R-ENV-22
✓ GARAGE ROOF/CEILING INSULATION FOR TWO STORIES(no conditioned space over garage)         □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Qualit	y Insu	lation	Installation (QII) - Insulation Stage (	Checklist	(Page 3 of 3)
	Site Ad	dress:			Enforcement Agency:	Permit Number:
	✓ GA	RAGE	ROO	F/CEILING INSULATION FOR TWO S	TORIES(no conditioned spa	ce over garage)
□   □   □   □   □   □   □   □   □   □				Insulation installed at joists against the air barr	ier in the garage to house transition	on (between floors). All wall
Yes No NA in the garage to house transition (between floors). All ceiling and wall insulation requirements above must be met. (NA if no conditioned space over garage).  If insulation is to be installed at ceiling of garage then the joists to the outside must be insulated and all the insulation requirements listed above must be met. (NA if no conditioned space over garage).  SPF insulation properly adhered to avoid gaps and provide an air seal  SPF (Spray Polyurethane Foam Medium Density) insulation the average thickness is equal to or greater than that listed on the CF-1R and the minimum thickness shall be no more than ½ inch less than the required thickness for the R-value. (NA for other forms of insulation).  SPF list the required floor cavity R-value from CF-1R, R List tested average depth of insulation in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other forms of insulation)  The set of the required floor cavity R-value from CF-1R, R List tested average depth of insulation in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other forms of insulation)  Measure thickness of insulation in 6 random measurements. Must be within ½ inch of the required depth  DECLARATION STATEMENT  I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.	✓ GA	RAGE	ROOI			
Yes No NA insulation requirements listed above must be met. (NA if no conditioned space over garage).  SPF insulation properly adhered to avoid gaps and provide an air seal  SPF (Spray Polyurethane Foam Medium Density) insulation the average thickness is equal to or greater than that listed on the CF-1R and the minimum thickness shall be no more than ½ inch less than the required thickness for the R-value. (NA for other forms of insulation).  SPF list the required floor cavity R-value from CF-1R, R List tested average depth of insulation in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other forms of insulation)  Measure thickness of insulation in 6 random measurements. Must be within ½ inch of the required depth  DECLARATION STATEMENT  I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.	□ Yes	□ No	□ NA	If insulation is to be installed at subfloor then the in the garage to house transition (between floor met. (NA if no conditioned space over garage).	ne insulation must <b>also</b> be installe s). All ceiling and wall insulation	d at joists against the air barrier n requirements above must be
Yes No NA SPF insulation properly adhered to avoid gaps and provide an air seal  SPF (Spray Polyurethane Foam Medium Density) insulation the average thickness is equal to or greater than that listed on the CF-1R and the minimum thickness shall be no more than ½ inch less than the required thickness for the R-value. (NA for other forms of insulation).  SPF list the required floor cavity R-value from CF-1R, R List tested average depth of insulation in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other forms of insulation)  NA Measure thickness of insulation in 6 random measurements. Must be within ½ inch of the required depth  DECLARATION STATEMENT  • I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.						
Yes No NA listed on the CF-1R and the minimum thickness shall be no more than ½ inch less than the required thickness for the R-value. (NA for other forms of insulation).  SPF list the required floor cavity R-value from CF-1R, R List tested average depth of insulation in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other forms of insulation)  No NA Measure thickness of insulation in 6 random measurements. Must be within ½ inch of the required depth  DECLARATION STATEMENT  • I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.					•	
Yes No NA in X 5.8R = R this is the installed R-value and must be equal to or greater than listed on CF-1R (NA for other forms of insulation)    O				listed on the CF-1R and the minimum thickness the R-value. (NA for other forms of insulation)	s shall be no more than $\frac{1}{2}$ inch les	s than the required thickness for
Yes No NA Measure thickness of insulation in 6 random measurements. Must be within ½ inch of the required depth  DECLARATION STATEMENT  • I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.		_		in $X 5.8R = $ R this is the installed R-value		
• I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.				Measure thickness of insulation in 6 random mo	easurements. Must be within ½ in	nch of the required depth
					fornia, the information provided of	on this form is true and correct.
• Lam the certified HERN rater who performed the verification services identified and reported on this certificate (responsible rater)		<ul> <li>I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.</li> <li>I am the certified HERS rater who performed the verification services identified and reported on this certificate (responsible rater).</li> </ul>				
<ul> <li>The installed feature, material, component, or manufactured device requiring HERS verification that is identified on this certificate (the installation) complies with the applicable requirements in Reference Residential Appendices RA2 and RA3 and the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the local enforcement agency.</li> <li>The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s)</li> </ul>	• The (the spec					

• The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s) responsible for the installation conforms to the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the enforcement agency.

emorement agency.		
Builder or Installer information as shown on the Installation Cer	rtificate (CF-6R)	
Company Name: (Installing Subcontractor or General Contractor or	Builder/Owner)	
Responsible Person's Name:	CSLB License:	
HERS Provider Data Registry Information		
Sample Group # (if applicable):	☐ tested/verified dwelling	□ not-tested/verified dwelling
		in a HERS sample group
HERS Rater Information		
HERS Rater Company Name:		
Responsible Rater's Name	Responsible Rater's Signature	
Responsible Rater's Certification Number w/ this HERS Provider:	Date Signed:	
	,	
Designation Number	Day (Time)	HEDC D 1

# CF-4R – MECHANICAL CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING

Duct Leakage Test – Completely New or R		AGNOSTIC TESTING		MECH-20
Duct Leakage Test – Completely New or R Site Address:	kepiacement I	Enforcement Agency:	Permit Number:	Page 1 of 2 :
Enter the Duct System Name or Identification/Ta	g:			
Enter the Duct System Location or Area Served:				
Note: Submit one Installation Certificate for each	h duct system th	hat must demonstrate complian	ice in the dwelling	ζ.
This certificate is required for compliance for corfor completely new or replacement duct systems ir replacement duct system can also include existing plenums, etc.) if those parts are accessible and the	n existing dwell g parts of the or	lings. For existing dwellings, riginal duct system (e.g., regist	a completely new	or
Duct Leakage Diagnostic Test – completely ne	w or replacem	ent duct system	1	
Enter a value for the Allowed Leakage (CFM) for	r the duct syster	m leakage verification. The va		
Verified Low Leakage Ducts in Conditioned Space Verified Low Leakage Ducts in Conditioned Space				
For verified low leakage ducts in conditioned spaceakage to outside test method must be used to verentered for Allowed Leakage.	e is shown in the	he special features section of the	he CF-1R, the	Allowed Leakage (CFM)
Allowed leakage calculation – (select one calcula				
0.06) for calculations. When utilizing Low Leaka be specified by the CF-1R to be less than 6%, in vertical calculations below. For example, if the user-spec	which case the u	user-specified leakage rate mu	st be used in the	
reported on the CF-1R as 3%, then use a <i>leakage</i>			1 411110 (1) 15	
☐ Cooling system method:  Nominal capacity of condenser in Tons.	x 400	x leakage factor =	(CFM)	
☐ Heating system method:	) in	30"		
	Thousands of E	Btu/hr x leakage factor =	(CFM)	
☐ Measured airflow method (RA3.3):		11	(CEM)	
Enter measured fan flow in CFM here	X	leakage factor =	(CFM)	
Enter value for Actual leakage (CFM) in the righ pressurization test procedure from Reference Res			e duct leakage	Actual Leakage (CFM)
	List	Actual Leakage from duct lea	kage test (CFM)	
Pass if Actual Leakage is less than Allowed Le	akage			∟ Pass □ Fail
For complete replacement of duct systems only, is test should be performed to verify that the excess (air handler cabinet), and not from other <i>accessib</i> .	leakage is com	ing only from a pre-existing fu	urnace cabinet must verify the	
installation (No sampling allowed).		e sealed using smoke		_

CERTIFICATE OF FIELD VERIFICATION AND D	CF-4R-MECH-20	
<b>Duct Leakage Test - Completely New or Replacement</b>	Duct System	(Page 2 of 2)
Site Address:	Enforcement Agency:	Permit Number:
□ Outside air (OA) ducts for Central Fan Integrated (CFI) ven leakage testing. CFI OA ducts that utilize controlled motorized meet ASHRAE Standard 62.2, and close when OA ventilation during duct leakage testing. □ All supply and return register boots must be sealed to the dr New duct installations cannot utilize building cavities as ple Mastic and draw bands must be used in combination with Connections.  DECLARATION STATEMENT • I certify under penalty of perjury, under the laws of the State of Ca I am the certified HERS rater who performed the verification service (the installation) complies with the applicable requirements in Ref specified on the Certificate(s) of Compliance (CF-IR) approved by the information reported on applicable sections of the Installation responsible for the installation conforms to the requirements specificatements agency.	dampers, that open only when is not required, may be configurely wall enums or platform returns in lies differently that the information provided access identified and reported on this is requiring HERS verification that erence Residential Appendices RA by the local enforcement agency.  Certificate(s) (CF-6R), signed and fied on the Certificate(s) of Compliance is not required.	OA ventilation is required to red to the closed position  u of ducts.  uct tape to seal leaks at duct  on this form is true and correct.  certificate (responsible rater).  is identified on this certificate 2 and RA3 and the requirements  submitted by the person(s)
Builder or Installer information as shown on the Installation Cert Company Name: (Installing Subcontractor or General Contractor or E	Builder/Owner)	
company France. (Instanting Subcontractor of General Contractor of L	ander o wher	
Responsible Person's Name:	CSLB License:	
HERS Provider Data Registry Information	T ( 1/ 'C' 1 1 1"	T
Sample Group # (if applicable):	□ tested/verified dwelling	☐ not-tested/verified dwelling in a HERS sample group
HERS Rater Information		
HERS Rater Company Name:		
Responsible Rater's Name	Responsible Rater's Signature	
Responsible Rater's Certification Number w/ this HERS Provider:	Date Signed:	

\_\_Registration Date/Time: \_\_\_\_\_\_\_HERS Provider: \_

Duc	ct Leakage Test – Existing Duct	System			(Page 1 of 2
	Address:	•	Enforcement Agency:	Permit Num	_
Ente	er the Duct System Name or Identific	ation/Tag:			
Ente	er the Duct System Location or Area	Served:			
Note	e: Submit one Installation Certificate	e for each duct system the	at must demonstrate complia	nce in the dwe	elling.
	installation certificate is required fo ditioning systems and duct systems.	or compliance for alterati	ions and additions in existing	dwellings to	space
duci com	e: For existing dwellings, a complete system (e.g., register boots, air hand pletely new or replacement duct syste kage Test – Completely New or Repla	dler, coil, plenums, etc.) i em installed in an existin	if those parts are accessible a	and they can b	e sealed. For a
Duc	t Leakage Diagnostic Test – existin	ng duct system	- 10	W.	
	ect one compliance method from the appropriate of the potential of the pot	•	1P1, 0	-	
	Option 2. Measured leakage to outside			CAL	
	Option 3. Reduce leakage by 60% or r		1 1	ıks.	
	Option 4. Fix all accessible leaks usin e: (Option 1 must be attempted befor		rater must verify.		
	ermine nominal Fan Airflow using o		. 7		
	Cooling system method: Size of cond		400 =CFM		
	Heating system method: 21.7 x		Capacity (kBtuh) =	CFM	
<u> П</u>	Measured system airflow using RA3.3  Option 1 used then:	3 airflow test procedures	:CFM		
1	Allowed leakage = Fan Airflow Actual leakage =	CFM	x 0.15 =	CFM	
	10	Pass if Actu	al leakage is less than Allov	ved leakage	□ Pass □ Fail
	Option 2 used then: Allowed leakage = Fan Airflow		x 0 10 =	CFM	
2	Actual leakage to outside =	CFM	X 0.10 =	CI WI	
		Pass if Actual leakage	to outside is less than Allov	ved leakage	□ Pass □ Fail
	Option 3 used then: Initial leakage prior to start of work	z- CFM			
	Final leakage after sealing all acces		test – CFM		
3	Initial leakage Final	_		CFM	
	(Leakage reduction/				
			Pass if % Reduc		□ Pass □ Fail
4	Option 4 used then: All accessible leaks repaired using	smoke test. HERS rater	must verify (No sampling).		
		Pass if all accessible lea	aks have been sealed using	Smoke Test	□ Pass □ Fail
D :		n		HEDG C	
	stration Number: 8 Residential Compliance Forms	Registration Da	te/1 ime:	HERS Provide	r: August 2009

CERTIFICATE OF FIELD VERIFICATION AND DIA	AGNOSTIC TESTING	CF-4R-MECH-21
<b>Duct Leakage Test – Existing Duct System</b>		(Page 2 of 2)
Site Address:	Enforcement Agency:	Permit Number:
	ı	
		41
		1
	DIV OF	7
☐ Outside air (OA) ducts for Central Fan Integrated (CFI) ventileakage testing. CFI OA ducts that utilize controlled motorized of meet ASHRAE Standard 62.2, and close when OA ventilation is	lampers, that open only when	OA ventilation is required to
during duct leakage testing.  ☐ All supply and return register boots must be sealed to the dryv	A DE AL	1.
duct leakage compliance option 3 (leakage reduction by $60\%$ ) an	d option 4 (fix all accessible	leaks) described above.
☐ New duct installations cannot utilize building cavities as plen	1 11	
☐ Mastic and draw bands must be used in combination with clot duct connections.	th backed rubber adhesive du	ct tape to seal leaks at all new
<ul> <li>DECLARATION STATEMENT</li> <li>I certify under penalty of perjury, under the laws of the State of Cal</li> </ul>	lifornia, the information provide	d on this form is true and correct.
I am the certified HERS rater who performed the verification service.	-	
<ul> <li>The installed feature, material, component, or manufactured device (the installation) complies with the applicable requirements in Referequirements specified on the Certificate(s) of Compliance (CF-1R)</li> </ul>	rence Residential Appendices R	A2 and RA3 and the
• The information reported on applicable sections of the Installation responsible for the installation conforms to the requirements specific enforcement agency.	Certificate(s) (CF-6R), signed ar	nd submitted by the person(s)
Builder or Installer information as shown on the Installation Certifi	cate (CF-6R)	
Company Name: (Installing Subcontractor or General Contractor or Bu	ilder/Owner)	
Responsible Person's Name:	SLB License:	
HERS Provider Data Registry Information		
Sample Group # (if applicable):	l tested/verified dwelling	☐ not-tested/verified dwelling in a HERS sample group
HERS Rater Information		
HERS Rater Company Name:		

Responsible Rater's Signature

Date Signed:

Responsible Rater's Name

Responsible Rater's Certification Number w/ this HERS Provider:

CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-MECH-22							
HSPP/F	SPP Installation; Cooling	Coil Airflow & Fan	Watt Draw Test	(Page 1 of 2)			
Site Addr	·ess:		Enforcement Agency:	Permit Number:			
	As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.						
	or the placement of a Stare Probe (PSPP) in the		(HSPP), and Perman	ently installed Static			
HSPP or	e Certificate of Compliance (C PSPP are required to be inst ribed in Reference Residential	alled in each air handler	in the dwelling. Procedure	s for installing HSPP and PSPP			
Select one	method from the two choices be						
	HSPP		eled and located downstream of gure in Section RA3.3.1.1.	the evaporator coil in the supply			
	PSPP	1/4 inch (6 mm) hole equ	ipped with a permanently instal	lled pressure probe, labeled and plenum as shown in the figure in			
System N	Name or Identification/Tag		27	14,			
System I	Location or Area Served		01/				
installed	that a HSPP or PSPP has been on the air handler per the ents of RA3.3.1.1. Enter Pass or I	(E)	7101				
When the the cooling coil airfle	ng coil airflow must be perfor ow diagnostic test must be ent	dicates Cooling Coil Air med as specified in Refe ered in the table below.	rence Residential Appendix . This measure requires verif	ication by a HERS rater.			
	e method from the three choices b						
	gnostic Fan Flow Using Plen						
	gnostic Fan Flow Using Flow gnostic Fan Flow Using Flow						
	Name or Identification/Tag	Capture Hood according	g to the procedures in KAS	5.5.1.5			
System I	Location or Area Served	) *					
Nominal outdoor u	Cooling Capacity (ton) of the unit.						
	minimum airflow requirement CF-1R (CFM/ton).	nt					
Calculate	the target minimum airflow						
	y multiplying the CFM/ton cr						
	on the CF-1R by the nominal						
cooling capacity of the outdoor unit (ton).  Target (CFM)							
Enter the diagnostically tested airflow							
(CFM).	Tested (	CFM)					
•	The system complies if Tested (CFM) is						
equal or	greater than Target (CFM). <b>Enter Pass o</b>	r Foil					
	Enter 1 ass of	Tan					
Ragistust	on Number	Danistustica	Data/Tima:	HERS Provider:			
	on Number: idential Compliance Forms	Kegisiranon l	Date/Time:	HERS Proviaer: August 2009			

CERTIFICATE OF FIELD VERNING ATION AND DIA CNOCENCE TREETING					
CERTIFICATE OF FIELD VERIFICATION AND I		CF-4R-MECH-22			
HSPP/PSPP Installation; Cooling Coil Airflow & Far		(Page 2 of 2)			
Site Address:	Enforcement Agency:	Permit Number:			
Fan Watt Draw Verification					
When the Certificate of Compliance indicates Fan Watt Draw verific	ration is required, the procedures for	or measuring the Fan Watt Draw			
must be performed as specified in Reference Residential Appendix R.					
in the table below. This measure requires verification by a HERS ra					
cooling coil airflow. The fan watt draw measurement and cooling co	oil airflow measurement must simul	taneously meet or exceed their			
target criteria specified by the CF-1R for the dwelling.	T. W. D.	6 11 1 11			
Select one method from the two choices below for compliance with the	-	for this dwelling.			
Portable Watt Meter Measurement according to the procedures in RA3.3.3.3.1					
Utility Revenue Meter Measurement according to the pro-	ocedures in RA3.3.3.2				
System Name or Identification/Tag					
System Location or Area Served		4			
·					
Enter the air handler Target (CFM) from the cooling coil airflow test table above.	<b>K</b>				
Enter the fan watt draw requirement from the		37			
CF-1R (Watt/CFM).	0 1				
Calculate the target maximum Watt draw for		<b>*</b> .			
the test by multiplying the Watt/CFM criteria					
specified on the CF-1R by the air handler					
Target (CFM). Target (Watt)		1			
Enter the diagnostically tested Watt draw					
(Watt). <b>Tested (Watt)</b> The system complies if Tested (Watt) is less					
than or equal to Target (Watt)	I SAN				
Enter pass or Fail	Y 100 Y				
		,			
5, (1),	50				
DECLARATION STATEMENT	Salifarnia dha infannadian anasidad	41: f :- 4 J 4			
• I certify under penalty of perjury, under the laws of the State of C					
I am the certified HERS rater who performed the verification ser	_				
• The installed feature, material, component, or manufactured devi (the installation) complies with the applicable requirements in Re	ce requiring HERS verification that	is identified on this certificate			
specified on the Certificate(s) of Compliance (CF-1R) approved		A2 and KA3 and the requirements			
The information reported on applicable sections of the Installatio	•	d submitted by the person(s)			
responsible for the installation conforms to the requirements spec					
enforcement agency.					
Builder or Installer information as shown on the Installation Cer					
Company Name: (Installing Subcontractor or General Contractor or	Builder/Owner)				
D '11 D   M	CGI D I .				
Responsible Person's Name:	CSLB License:				
HEDCD'l. D.4. D. '4. J. C					
HERS Provider Data Registry Information Sample Group # (if applicable):	☐ tested/verified dwelling	☐ not-tested/verified dwelling			
Sample Group " (II applicable).	Lested, verified awening	in a HERS sample group			
HERS Rater Information		, , ,			
HERS Rater Company Name:					
Responsible Rater's Name	Responsible Rater's Signature				
Responsible Rater's Certification Number w/ this HERS Provider:	Date Signed:				

\_Registration Date/Time: \_\_

\_ HERS Provider: \_

	RTIFICATE OF FIELD VERIFICATION	ON AND D	DIAGNOSTIC	TESTING	CF	-4R-MECH-23
	fication of High EER Equipment		I		T =	(Page 1 of 1)
Site A	Address:		Enforcement A	Agency:	Permit	Number:
Proce multij	fication of High EER Equipment edures for verification of High EER Equipment are ple systems, the procedures must be applied to eac liance using this form. Attach an additional form(	h system sepa	rately. As many a	s 4 systems in t	he dwelling can	
1	System Name or Identification/Tag					
2	System Location or Area Served					
3	Certified EER Rating of the installed equipment (Btu/Watt-hr)					
4	Make and Model Number of the installed Outdoor Unit				- 1	
5	Make and Model Number of the installed Inside Coil			(	13	
6	Make and Model Number of the installed Furnace or Air Handler.		10	1	4h	
7	Minimum Equipment EER required for compliance as reported on the CF-1R		OF	10	1	
comp □ W	Then a high EER system specification includes a tindiance credit. Refer to Reference Residential Apportance credit. Refer to Reference Residential Apportance installation of specific matched equipment is deference Residential Reference Re	endix RA3.4.3 necessary to a	I for the Time Del chieve a high EEF	ay Relay Verifi R, installation o	cation Procedure f the specific equ	e. uipment must be
8	If the Certified EER Rating in row 3 is equal or greater than the required minimum EER in row 7, the unit complies.  If the unit complies enter Pass	RM	P	W		
<ul> <li>I d</li> <li>I d</li> <li>T d</li> <li>T d</li> <li>T re</li> <li>en</li> </ul>	LARATION STATEMENT certify under penalty of perjury, under the laws of am the certified HERS rater who performed the ve he installed feature, material, component, or manu he installation) complies with the applicable requirectified on the Certificate(s) of Compliance (CF-1) he information reported on applicable sections of the sponsible for the installation conforms to the requireforcement agency.	rification serv factured device rements in Ref R) approved be the Installation irements speci	rices identified and the requiring HERS ference Residentia by the local enforce in Certificate(s) (Classified on the Certificate	I reported on the verification the last Appendices Rement agency. F-6R), signed a	at is identified on RA2 and RA3 and and submitted by	sponsible rater).  In this certificate d the requirements the person(s)
	der or Installer information as shown on the Instany Name: (Installing Subcontractor or General Contractor)					
Respo	onsible Person's Name:		CSLB License:			
HER	S Provider Data Registry Information					
	elle Group # (if applicable):		☐ tested/verified	d dwelling	not-tested in a HERS sa	/verified dwelling ample group
	S Rater Information				1	
HER	S Rater Company Name:					
Respo	onsible Rater's Name		Responsible Rate	er's Signature		
Respo	onsible Rater's Certification Number w/ this HERS	Provider:	Date Signed:			

\_ Registration Date/Time: \_\_\_\_\_\_ HERS Provider: \_

CER	CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-MECH-24							
	rge Indicator			JATION AND D	IAGNOSTIC IES	TING		Page 1 of 1)
	Address:	Display (CID	<u>)                                    </u>		Enforcement Agency	·•	Permit Num	
Ditt 1	radi ess.				Emoreement rigency	•	1 CI IIII I VUIII	ber.
Charge for the and a demo- refrig show	CHARGE INDICATOR DISPLAY (CID) Charge Indicator Display (CID) specifications are available in Reference Joint Appendix JA6; HERS verification procedure for the CID is in Reference Residential Appendix RA3.4.2. If refrigerant charge verification is required for compliance, and a CID has been installed on the system, a pass for this CID verification for an installed system is sufficient for demonstrating compliance with the refrigerant charge verification requirement for that system, thus submittal of a standard refrigerant charge verification compliance form (MECH 25) is not required for a system that has a passing CID verification shown in the table below.  CID - Verification of the Presence and Proper Function of a Charge Indicator Display							
Syste	System Name or Identification/Tag							
System Location or Area Served								
1	□Yes	□No	The d	isplay is mounted a	djacent to the system	thermostat		
2	□Yes	□No	65 F a	The system has operated for at least 15 minutes, inside air temperature is greater than 65 F and outdoor temperature is greater than 55 F, and, the display indicates the system is operating properly (does not indicate a system fault).				
3	□Yes	□No	The C	CID was installed by	the manufacturer	4		
4	4 ☐Yes ☐No or if 3 is No, the CID was installed according to the manufacturer's specifications							
Yes t	Yes to 1 and 2 and yes to either 3 or 4 is a pass enter Pass or Fail ✓ □ Pass ✓ □ Fail							
• I d • I a • TI (tl) sp • TI re er	<ul> <li>DECLARATION STATEMENT</li> <li>I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.</li> <li>I am the certified HERS rater who performed the verification services identified and reported on this certificate (responsible rater).</li> <li>The installed feature, material, component, or manufactured device requiring HERS verification that is identified on this certificate (the installation) complies with the applicable requirements in Reference Residential Appendices RA2 and RA3 and the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the local enforcement agency.</li> <li>The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s) responsible for the installation conforms to the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the enforcement agency.</li> </ul>							
				the Installation Certi eneral Contractor or B				
	Responsible Person's Name:  CSLB License:							
	HERS Provider Data Registry Information  Sample Group # (if applicable): □ tested/verified dwelling □ not-tested/verified dwelling							
	in a HERS sample group							
	S Rater Informate S Rater Company							
TILK	, Kater Company	ivaine.						
Respo	onsible Rater's Na	me			Responsible Rater's Signature			

Date Signed:

Responsible Rater's Certification Number w/ this HERS Provider:

\_\_ HERS Provider: \_

					AGNOSTIC TES	TING (	<u>(Page 1 of 5)</u>
	ddress:	ge vernicand	<u> л - Sta</u>	ndard Measurem	Enforcement Agend	ey: Permit	(Page 1 of 5) Number:
Note: If installation of a Charge Indicator Display (CID) is utilized as an alternative to refrigerant charge verification for compliance, a MECH-24 Certificate (instead of this MECH-25 Certificate) should be used to demonstrate compliance with the refrigerant charge verification requirement. TMAH and STMS are not required for compliance, when a CID is utilized for compliance.  As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.							
Proce is req repla	edures for insta juired for comp cement space-c	lling TMAH ard liance, TMAH d conditioning sys	e specific are also stems tha	ed in Reference Resi required for complic	ration Temperature dential Appendix RA unce. STMS are only compliance method. Handler	3.2. If refrigerant or required for comp	charge verification
Syste	m Name or Ide	ntification/Tag			(	1	
Syste	m Location or A	Area Served			BA	OFF	
1	□Yes	□No	No 5/16 inch (8 mm) access hole upstream of evaporative coil in the return plenum and labeled according to Figure in Section RA3.2.2.2.2.				
2	□Yes	□No	5/16 inch (8 mm) access hole downstream of evaporative coil in the supply plenum and labeled according to Figure in Section RA3.2.2.2.2.				
Yes t	o 1 and 2 is a pa	ass.			Enter Pass or Fail	✓ □ Pass	✓ □ Fail
STMS - Sensor on the Evaporator Coil							
Syste	m Name or Ide	ntification/Tag	J	ON	BI		
3	□Yes	□No		ations, or is installed	ed, or field installed I by methods/specific		
4	□Yes	□No	digital t	hermometer. The se	ed with a standard micensor mini plug is accorning the airflow thr	cessible to the insta	lling technician and
5	□Yes	□No	The sen	sor measures the sat	uration temperature	of the coil within 1.	3 degrees F
	o 3, 4, and 5 is if STMS are no		therwise	Enter enter Pass or Fail	✓ □ N/A	✓ □ Pass	✓ □ Fail
STMS - Sensor on the Condenser Coil							
Syste	m Name or Ide	ntification/Tag					
6	The sensor is factory installed, or field installed according to manufacturer's specifications, or is installed by methods/specifications approved by the Executive Director.						
7	□Yes	The sensor wire is terminated with a standard mini plug suitable for connection to a digital thermometer. The sensor mini plug is accessible to the installing technician and the HERS rater without changing the airflow through the condenser coil					
8	□Yes	□No	The sen		uration temperature	of the coil within 1.	3 degrees F
	Yes to 6, 7, and 8 is a pass. Enter N/A if STMS are not applicable. Otherwise enter Pass or Fail ✓ □ N/A ✓ □ Pass ✓ □ Fail						

Registration Number: \_\_\_\_\_2008 Residential Compliance Forms \_ HERS Provider: \_ Registration Date/Time: \_ August 2009

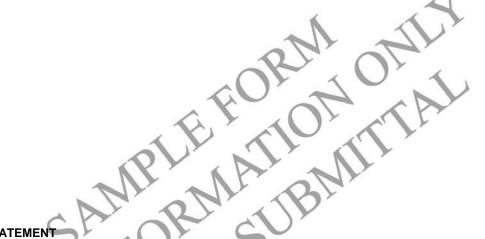
CERTIFICATE OF FIELD VERIFIC	TING	CF-4R-MECH-25				
Refrigerant Charge Verification - Sta	ndard Measurem			(Page 2 of 5)		
Site Address:		Enforcement Agenc	ey:	Permit Number:		
Standard Charge Measurement Procedur Procedures for determining Refrigerant Charge of Residential Appendix RA3.2. As many as 4 system additional form(s) for any additional systems in t  The system should be installed and charged the system must meet minimum airflow requ  foutdoor air dry-bulb is 55 F or below, th Space Conditioning Systems	using the Standard Ch ms in the dwelling can the dwelling as applica in accordance with th uirements as prerequis	arge Measurement Pro be documented for con ible. e manufacturer's specij ite for a valid refrigera	cedure are on the compliance using the complex of t	available in Reference ing this form. Attach an fore starting this procedure. est.		
System Name or Identification/Tag						
System Location or Area Served						
Outdoor Unit Serial #		200		1		
Outdoor Unit Make						
Outdoor Unit Model		2	0			
Nominal Cooling Capacity Btu/hr	^	0,7		V		
Date of Verification		10				
Calibration of Diagnostic Instruments	al I	11	1	<del>y</del>		
Date of Refrigerant Gauge Calibration	7 1	PON	(must	be re-calibrated monthly)		
Date of Thermocouple Calibration	ON	10)	(must	be re-calibrated monthly)		
Measured Temperatures (°F)	OF	50'	<u> </u>			
System Name or Identification/Tag	2	,				
Supply (evaporator leaving) air dry-bulb						
temperature (T <sub>supply</sub> , <sub>db</sub> )	1					
Return (evaporator entering) air dry-bulb	,					
temperature (T <sub>return</sub> , db)	>					
Return (evaporator entering) air wet-bulb						
temperature (T <sub>return</sub> , wb)						
Evaporator saturation temperature						
(T <sub>evaporator</sub> , sat) Condensor saturation temperature						
(T <sub>condensor</sub> , sat)						
Suction line temperature (T <sub>suction</sub> )						
Liquid Line Temperature (T <sub>liquid</sub> )						
Condenser (entering) air dry-bulb						
temperature (T <sub>condenser</sub> , db)						
· Condenset, do	•	•		,		
Registration Number:2008 Residential Compliance Forms	Registration D	0ate/Time:	F	HERS Provider:August 2009		

CERTIFICATE OF FIELD VERIFIC	CATION AND DI	AGNOSTIC TES	TING	CF-4R-MECH-25
Refrigerant Charge Verification - Star	ndard Measurem			(Page 3 of 5)
Site Address:		Enforcement Agend	e <b>y:</b>	Permit Number:
Minimum Ainflam Daminamant		<u>I</u>		
Minimum Airflow Requirement  Temperature Split Method Calculations f	or dotormining Mi	nimum Airflow Doo	uiromont:	for Dofrigoront Chargo
Verification. The temperature split method				
System Name or Identification/Tag				
Calculate: Actual Temperature Split =				
T <sub>return, db</sub> - T <sub>supply, db</sub>				
Target Temperature Split from Table				
RA3.2-3 using T <sub>return, wb</sub> and T <sub>return, db</sub>				.1
Calculate difference: Actual Temperature		6	4	
Split – Target Temperature Split =			7	
Passes if difference is between -4°F and		Of the	()>	*
+4°F or upon remeasurement, if between -4°F and -100°F <b>Enter Pass or Fail</b>	<b>C</b>	0, 2		
Note: Temperature Split Method Calculation	n is not necessary if	   actual Cooling Coil	Airflow is	verified using one of the
airflow measurement procedures specified in measured, the value must be equal to or great	n Reference Residen	tial Appendix RA3.3.	If actual o	cooling coil airflow is
	1	1		
Calculated Minimum Airflow Requirement	nt (CFM) = Nomi	nal Cooling Capacit	ty (ton) X	300 (cfm/ton)
System Name or Identification/Tag	OK	50,		
Calculated Minimum Airflow Requirement (CFM)	R			
	CO.			
Measured Airflow using RA3.3 procedures (CFM)				
Passes if measured airflow is greater than				
or equal to the calculated minimum airflow requirement. Enter Pass or Fail				
-				
Superheat Charge Method Calculations for fixed orifice metering device systems	or Refrigerant Cha	rge Verification. T	his procedu	are is required to be used for
System Name or Identification/Tag				
Calculate: Actual Superheat =				
T <sub>suction</sub> – T <sub>evaporator, sat</sub> Target Superheat from Table RA3.2-2				
using T <sub>return, wb</sub> and T <sub>condenser, db</sub>				
Calculate difference:				
Actual Superheat – Target Superheat =  System passes if difference is between				
-6°F and +6°F Enter Pass or Fail				
Registration Number:	Registration F	)ate/Time:	L	IERS Provider:
2008 Residential Compliance Forms	Regisiration D	/ 1 tille.	<i>I</i> I	August 2009

CERTIFICATE OF FIELD VERIFICATIO		
Refrigerant Charge Verification - Standard Site Address:	Enforcement Agency:	(Page 4 of 5 Permit Number:
Subcooling Charge Method Calculations for Refifer thermostatic expansion valve (TXV) and electron System Name or Identification/Tag		
Calculate: Actual Subcooling =		
$T_{condenser,  Sat} - T_{liquid}$ Target Subcooling specified by manufacturer		
Calculate difference: Actual Subcooling – Target Subcooling =		
System passes if difference is between -4°F and +4°F Enter Pass or Fail		
Metering Device Calculations for Refrigerant Ch thermostatic expansion valve (TXV) and electronic		is required to be used for
System Name or Identification/Tag	EO. 4	
Calculate: Actual Superheat = $T_{\text{suction}} - T_{\text{evaporator, sat}}$	E, 40,	
Enter allowable superheat range from manufacturer's specifications (or use range between 3°F and 26°F if manufacturer's specification is not available)	MAIBM	
System passes if actual superheat is within the allowable superheat range  Enter Pass or Fail	K 20,	
ROR MOTE	OK	
Registration Number: F	Registration Date/Time:	HERS Provider:

Refrigerant Charge Verification - Standard Measurement Procedure				(Page 5 of 5)	
Site Address:	Enforcement Agency:		ey: Permit	Permit Number:	
Standard Charge Measurement Summary:  System shall pass both refrigerant charge criteria, metering device criteria (if applicable), and minimum cooling coil airflow criteria based on measurements taken concurrently during system operation. If corrective actions were taken, all applicable verification criteria must be re-measured and/or recalculated.					
System Name or Identification/Tag					
System meets all refrigerant charge and airflow requirements. Enter Pass or Fail					

CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING



## **DECLARATION STATEMENT**

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
- I am the certified HERS rater who performed the verification services identified and reported on this certificate (responsible rater).
- The installed feature, material, component, or manufactured device requiring HERS verification that is identified on this certificate (the installation) complies with the applicable requirements in Reference Residential Appendices RA2 and RA3 and the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the local enforcement agency.
- The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s) responsible for the installation conforms to the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the enforcement agency.

Builder or Installer information as shown on the Installation Certificate (CF-6R)					
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)					
Responsible Person's Name:		CSLB License:			
responsible religions runne.		CALL LICENSE.			
HEDGE 'I D / D / / I C /					
HERS Provider Data Registry Information					
Sample Group # (if applicable):		☐ tested/verified dwelling	☐ not-tested/verified dwelling		
			in a HERS sample group		
HERS Rater Information		I			
HERS Rater Company Name:					
Responsible Rater's Name		Responsible Rater's Signature			
		The state of the s			
Responsible Rater's Certification Number w/ this HERS	S Provider:	Date Signed:			
Responsible Rater's Certification (Value of W/ this TIER)	o i iovidei.	Date Signed.			
Registration Number:	Registration	n Date/Time:	HERS Provider:		

CF-4R-MECH-25

CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-MECH-27						
Maximum Rated Total Cooling Capacity (Page 1 of 2)						
_	Address:	]	Enforcement Agency:	Permit Number:		
Proce given Comp rating requir the El	imum Rated Total Cooling Capacity (MRZ) dures for calculating the Maximum Rated Total Coin Reference Residential Appendix RA1. The valulance (CF-IR). Compliance with this credit required ARI conditions that is equal or less than the Maximum for duct leakage, and prescriptive cooling ER must be verified. As many as 4 systems in the systems and additional systems in the dwelling as approximately approximately systems in the dwelling as approximately and systems.	Cooling Capacity (No is calculated by wires that the instal IRTCC compliances coil airflow compdwelling can be do	MRTCC) compliance credit the compliance software and led space conditioning systen credit value. The system ma liance credits, and if the Elec	d given on the Certificate of m must have a cooling capacity ust also meet the HERS verification ctrical Input Exception is utilized,		
1	System Name or Identification/Tag					
2	System Location or Area Served					
3a	ARI Rated Total Cooling Capacity of the installed system (Btu/hr)			41		
3b	Sum of the ARI Rated Total Cooling Capacities of multiple systems installed in the dwelling (Btu/hr), if applicable.		M	AL.		
value	MRTCC credit may be calculated for the whole from the CF-1R is for the entire dwelling, and the Cooling Capacities of the installed cooling system	ere are multiple coo	ling systems installed in the			
4a	MRTCC target value from the CF-1R (Btu/hr) – if for individual systems	D'L	40/			
4b	MRTCC target value from the CF-1R (Btu/hr) – if total for entire dwelling	LIL		×		
5	If the applicable row 3 value is less than or equal to the applicable row 4 value, the unit complies.  If the unit complies enter Pass	RM	BA			
Electr value	Electrical Input Exception for MRTCC compliance credit  Electrical Input Exception for MRTCC compliance credit allows the installed rated total cooling capacity to exceed the MRTCC target value for compliance credit if the electrical input of the oversized cooling system is less than or equal to the electrical input of a standard cooling system. For buildings with more than one cooling system, the proposed electrical input is the sum of the values for each system.					
1	System Name or Identification/Tag					
2	System Location or Area Served	7				
6	ARI Rated EER of the installed unit (Btu/Watt-hr)					
7a	Calculate Proposed Electrical Input <sup>7</sup>					
7b	Sum of the Proposed Electrical Input values for entire multiple systems installed in the dwelling (Watt), if applicable.					
8a	Calculate Standard Total Electric Input <sup>8</sup> (Watt) – if for individual systems					
8b	Calculate Standard Total Electric Input <sup>8</sup> (Watt) – if total for entire dwelling					
9	If the applicable row 7 value is less than or equal to the applicable row 8 value, the unit complies.  If the unit complies enter Pass					
Pagis	tration Number:	Registration Date	o/Time:	HERS Provider:		

CERTIFICATE OF FIELD VERIFICATION AND I	DIAGNOSTIC TESTING	CF-4R-MECH-27			
Maximum Rated Total Cooling Capacity (Page 2 of 2					
Site Address:	<b>Enforcement Agency:</b>	Permit Number:			
Notes:  7) Proposed Electrical Input (Watt) = ARI Rated Total Cooling Capacity (Btu/hr) / ARI Rated EER (Btu/Watt-hr) if the proposed Air Conditioner is listed in the ARI database with a specified furnace or air handler and that furnace or air handler is to be installed.					
Otherwise, if the proposed Air Conditioner is listed in the ARI database without a furnace or air handler, the proposed electrical input is either: Proposed Electrical Input (Watt) = ARI Rated Total Cooling Capacity (Btu/hr) / ARI Rated EER (Btu/Watt-hr) + ARI Rated Total Cooling Capacity (Btu/hr) $\times$ .0048 (Watt-hr/Btu);					
(Btu/hr) x .0122 (Watt-hr/Btu) + The measured fan power (Watt); where the r CFM per ton using the procedure described in RA3.3 of the Residential Appe	Proposed Electrical Input (Watt) = ARI Rated Total Cooling Capacity (Btu/hr) / ARI Rated EER (Btu/Watt-hr) - ARI Rated Total Cooling Capacity (Btu/hr) x .0122 (Watt-hr/Btu) + The measured fan power (Watt); where the measured fan power is determined at an airflow equal to or greater than 350 CFM per ton using the procedure described in RA3.3 of the Residential Appendices  8) Standard Total Electric Input (Watt) = MRTCC target from the CF-1R (Btu/hr) / 10 (Btu/Watt-hr)				
□ Systems must meet the Cooling Coil Airflow HERS verification requirement in order to receive credit for MRTCC.  Systems must meet the Duct Sealing HERS verification requirements in order to receive credit for MRTCC.  Systems must meet the HERS verification requirement for EER if the Electrical Input Exception is utilized to comply with the MTRCC compliance credit  DECLARATION STATEMENT  I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.  I am the certified HERS rater who performed the verification services identified and reported on this certificate (responsible rater).  The installed feature, material, component, or manufactured device requiring HERS verification that is identified on this certificate (the installation) complies with the applicable requirements in Reference Residential Appendices RA2 and RA3 and the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the local enforcement agency.  The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s) responsible for the installation conforms to the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the enforcement agency.					
Builder or Installer information as shown on the Installation Certificate (CF-6R)					
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)					
Responsible Person's Name:	CSLB License:				
HERS Provider Data Registry Information					
Sample Group # (if applicable):	☐ tested/verified dwelling	☐ not-tested/verified dwelling in a HERS sample group			
HERS Rater Information					
HERS Rater Company Name:					
Responsible Rater's Name	Responsible Rater's Signature				

Date Signed:

Responsible Rater's Certification Number w/ this HERS Provider:

CERTIFICATE OF FIELD VERIFICATION AND DIAGNOSTIC TESTING CF-4R-MECH-				
Low Leakage Air Handler Verification (Page 1				
Site Address:	Enforcement Agency:	Permit Number:		
Verified Low Leakage Air Handler (LLAH) with Sealed and Tested Duct System An additional compliance credit is available for verified low leakage ducts if a Low Leakage Air Handler is installed. The air handler must be connected to a Sealed and Tested New Duct System to receive the credit. Refer to Residential Appendix RA3.1.4.3.10. As many as 4 systems in the dwelling can be documented for compliance using this form. Attach an additional form(s) for any additional systems in the dwelling as applicable.				
System Name or Identification/Tag				
System Location or Area Served				
LLAH Unit Make				
LLAH Unit Model	4			
☐ The LLAH must be connected to a New Duct System that I Tested Ducts in order to receive compliance credit.	neets the HERS verification requir	ement for Sealed and		
☐ The LLAH cabinet (furnace or heat pump fan and inside colless of its nominal air conditioning cfm delivered when pressur outlets, and condensate drain port(s) sealed.				
If the installed LLAH documentation confirms the unit meets the certification requirement and Duct Testing is specified on the CF-1R, the unit complies.  If the unit complies enter Pass	ATIONITY			
<ul> <li>DECLARATION STATEMENT</li> <li>I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.</li> <li>I am the certified HERS rater who performed the verification services identified and reported on this certificate (responsible rater).</li> <li>The installed feature, material, component, or manufactured device requiring HERS verification that is identified on this certificate (the installation) complies with the applicable requirements in Reference Residential Appendices RA2 and RA3 and the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the local enforcement agency.</li> <li>The information reported on applicable sections of the Installation Certificate(s) (CF-6R), signed and submitted by the person(s) responsible for the installation conforms to the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the enforcement agency.</li> </ul>				
Builder or Installer information as shown on the Installation Cert Company Name: (Installing Subcontractor or General Contractor or I				
	,			
Responsible Person's Name:	CSLB License			
HERS Provider Data Registry Information				
Sample Group # (if applicable):		not-tested/verified dwelling a HERS sample group		
HERS Rater Information				
HERS Rater Company Name:				
Responsible Rater's Name	Responsible Rater's Signature			
Responsible Rater's Certification Number w/ this HERS Provider:	Date Signed:			
Registration Number: Registration 2008 Residential Compliance Forms	Date/Time:HE	RS Provider:August 2009		

Enter the Duct Systematics Enter the Duct Systematics Submit one SUPPLY DUC	em Name or Identification/Tag: em Location or Area Served: Installation Certificate for each duct system  T LOCATION COMPLIANCE C	Enforcement Agency:	Permit N	
Enter the Duct System Enter the Duct System Note: Submit one SUPPLY DUC' Credit is available	em Location or Area Served:  Installation Certificate for each duct system  Installation COMPLIANCE C			
Enter the Duct Syst Note: Submit one SUPPLY DUC Credit is available	em Location or Area Served:  Installation Certificate for each duct system  Installation COMPLIANCE C	that must demonstrate comp	liance in the dwe	lling
Enter the Duct Syst Note: Submit one SUPPLY DUC Credit is available	em Location or Area Served:  Installation Certificate for each duct system  Installation COMPLIANCE C	that must demonstrate comp	liance in the dwe	lling
Note: Submit one SUPPLY DUC Credit is available	Installation Certificate for each duct system  T LOCATION COMPLIANCE C	that must demonstrate comp	liance in the dwe	lling
SUPPLY DUC	T LOCATION COMPLIANCE C	that must demonstrate comp	liance in the dwe	lling
Credit is available				iiiig.
•	for supply duct systems entirely in condition  2 LINEAR FEET OF SUPPLY DUCT O	ned space or with reduced su		
<b>CREDIT.</b> A detail compliance with th	ed duct design is not required for complian	ce with this measure. HERS	verification is re	quired for
□Yes □No	Less than 12 linear feet of supply duct outs	ide of conditioned space.		
	Yes to this compl	iance credit is a pass	□ Pass ✓	☐ Fail
	IS LOCATED IN CONDITIONED SPACE of the specifical control of the speci			
□Yes □ No	Ducts are located within the conditioned volume			
	Yes to this compl	iance credit is a pass	□ Pass ✓	☐ Fail
approved by the enfo the installation must including details desc agency, entered into testing for this group	on. In order to claim these credits a detailed duc reement agency, and the installation must be cert be verified by a HERS rater. The size, R-value, a cribing if ducts are buried in attic insulation mus the compliance software, and shown on the CF-1 of compliance credits are described in Reference	tified to be consistent with the a und location of each duct segme t be shown in the design drawin R for the building. Procedures e Residential Appendix RA3.1	pproved plans by the nt in an uncondition gs approved by the	he installer, and ned space enforcement
	Prescriptive Cooling Coil Airflow compliance ha			
□Yes □ No The building's duct system design was approved by the enforcement agency, and the duct system design is detailed in the special features section of the CF-1R approved by the enforcement agency.				
□Yes □ No The installed duct system does not have severely twisted or compressed sections that would restrict required operating airflow.				
The installed duct system layout, including duct sizes and locations of supply & return registers match the duct system design plans approved by the enforcement agency, and the installed duct system meets the requirements for Verified Duct Design specified in Reference Residential Appendix RA3.1.4.1.1.1				
•		Yes to all is a pass	✓ □ Pass	✓ □ Fail

CERTI	FICATI	E OF FIELD VERIFICATION AND I	DIAGNOST	TIC TESTING	CF-4R-	<b>MECH-29</b>
				Page 2 of 2)		
Site Add		,	Enforceme		Permit Numb	
In order the appro approved	to claim ci ved duct d duct desig	CTS ON THE CEILING R-VALUE COMING the condition of the ceiling, the condition design must identify which portions of the duct system. Also, the duct system must meet prescriptive Lon requirements.	s for the Suppl tem are "Burie	ly Duct Surface Area Re ed", and the installed du	ct system must co	nform to the
□Yes	The duct design passes the Supply Duct Surface Area Reduction compliance credit, buried ducts are shown on the approved duct design and on the approved CF-1R, and the installed duct system is consistent with the approved duct design drawings.					
□Yes	□ No	Meets Verified Duct Leakage requirements				
□Yes	□ No	Meets Verified Quality Insulation Installation re	quirements			
				Yes to all is a pass	✓ □ Pass	✓ 🗆 Fail
In order the appro	to claim co ved duct d to the appr	redit for buried ducts on the ceiling, the conditions esign must identify which portions of the duct system was duct design. Also, the duct system must meetion Installation requirements.  The duct design passes the Supply Duct Surface approved duct design and on the approved CF-1 design drawings.  Meets Verified Duct Leakage requirements	s for the Suppl tem are "Deep et prescriptive : Area Reducti	ly Buried", and the insto Duct Leakage test requi on compliance credit, bu	alled duct system is rements and the burnied ducts are sho	must wilding must own on the
□Yes	□ No	Meets Verified Quality Insulation Installation re	equirements	1		
<ul> <li>I certi</li> <li>I am t</li> <li>The ir (the ir specif</li> <li>The ir respondent of the irrespondent of the irrespon</li></ul>	<ul> <li>DECLARATION STATEMENT</li> <li>I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.</li> <li>I am the certified HERS rater who performed the verification services identified and reported on this certificate (responsible rater).</li> <li>The installed feature, material, component, or manufactured device requiring HERS verification that is identified on this certificate (the installation) complies with the applicable requirements in Reference Residential Appendices RA2 and RA3 and the requirements specified on the Certificate(s) of Compliance (CF-1R) approved by the local enforcement agency.</li> </ul>					ble rater). certificate equirements erson(s)
Builder or Installer information as shown on the Installation Certificate (CF-6R)  Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)						
	ble Person		CSLB Licens	se:		
		ata Registry Information applicable):	□ tested/ver	rified dwelling	not-tested/verifi	ed dwelling
Sample O	noup π (II	аррисаоте).	_ icsicd/vel	_	a HERS sample	_
	ater Infor					
HERS Ra	ter Compa	ny Name:				
Responsil	ble Rater's	Name	Responsible	Rater's Signature		

Date Signed:

Responsible Rater's Certification Number w/ this HERS Provider: